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1982 YEAR-END ELECTRIC POWER SURVEY

A Report of the Electric Power Survey Committee of the

EDISON ELECTRIC INSTITUTE

The association of electric companies

A REPORT OF THE ELECTRIC POWER SURVEY COMMITTEE OF THE EDISON ELECTRIC INSTITUTE

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B. C. Hulsey, Southwest Power Pool
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R. V. Knudsen, Midcontinent Area Power Pool
W. A. Lewis, East Central Area Reliability Coordination Agreement
C. L. McNeese, Electric Reliability Council of Texas

MANUFACTURERS' REPRESENTATIVES

Domestic

J. R. Alexander, Westinghouse Electric Corp., Orlando, Florida
R. G. Alsworth, Worthington Div., McGraw-Edison Co., Wellsville, New York
R. G. Carlson, Allis-Chalmers Co., York, Pennsylvania
M. A. Cerce, Elliott Company, Jeannette, Pennsylvania
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L. A. Ellis, RTE Corp., Waukesha, Wisconsin
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K. J. Keuper, Utility Power Corp., West Allis, Wisconsin
N. W. Landis, Federal Pacific Electric Co., Newark, New Jersey
J. R. Lennartson, Westinghouse Electric Corp., Pittsburgh, Pennsylvania
J. M. Major, General Electric Co., Rome, Georgia
K. McCullough, The Babcock & Wilcox Co., Barberton, Ohio
H. J. Melosh, III, Foster Wheeler Corp., Livingston, New Jersey
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G. E. Pfafflin, Allis-Chalmers Co., York, Pennsylvania
J. Popek, Transamerica Delaval, Inc., Trenton, New Jersey
J. J. Reilly, General Electric Co., Lynn, Massachusetts
M. G. Rode, General Electric Co., San Jose, California
W. G. Rogal, Westinghouse Electric Corp., Philadelphia, Pennsylvania
M. Rolland, Westinghouse Electric Corp., South Boston, Virginia
J. G. Rosenberg, Westinghouse Electric Corp., Pittsburgh, Pennsylvania
P. R. Springer, McGraw-Edison Co., Canonsburg, Pennsylvania
J. E. Taucher, Cooper Energy Services, Grove City, Pennsylvania
T. F. Tobin, Riley Stoker Corp., Worcester, Massachusetts
H. B. Williams, General Electric Co., Pittsfield, Massachusetts

Foreign

T. Henry, Canadian General Electric Co., Ltd., Peterborough, Ontario, Canada
R. J. Hoefling, Siemens Corp., Iselin, New Jersey
W. B. Howe, The English Electric Corp., Port Chester, New York
Kazuo Iwata, The Tokyo Shibaura Electric Co., Ltd., Tokyo, Japan
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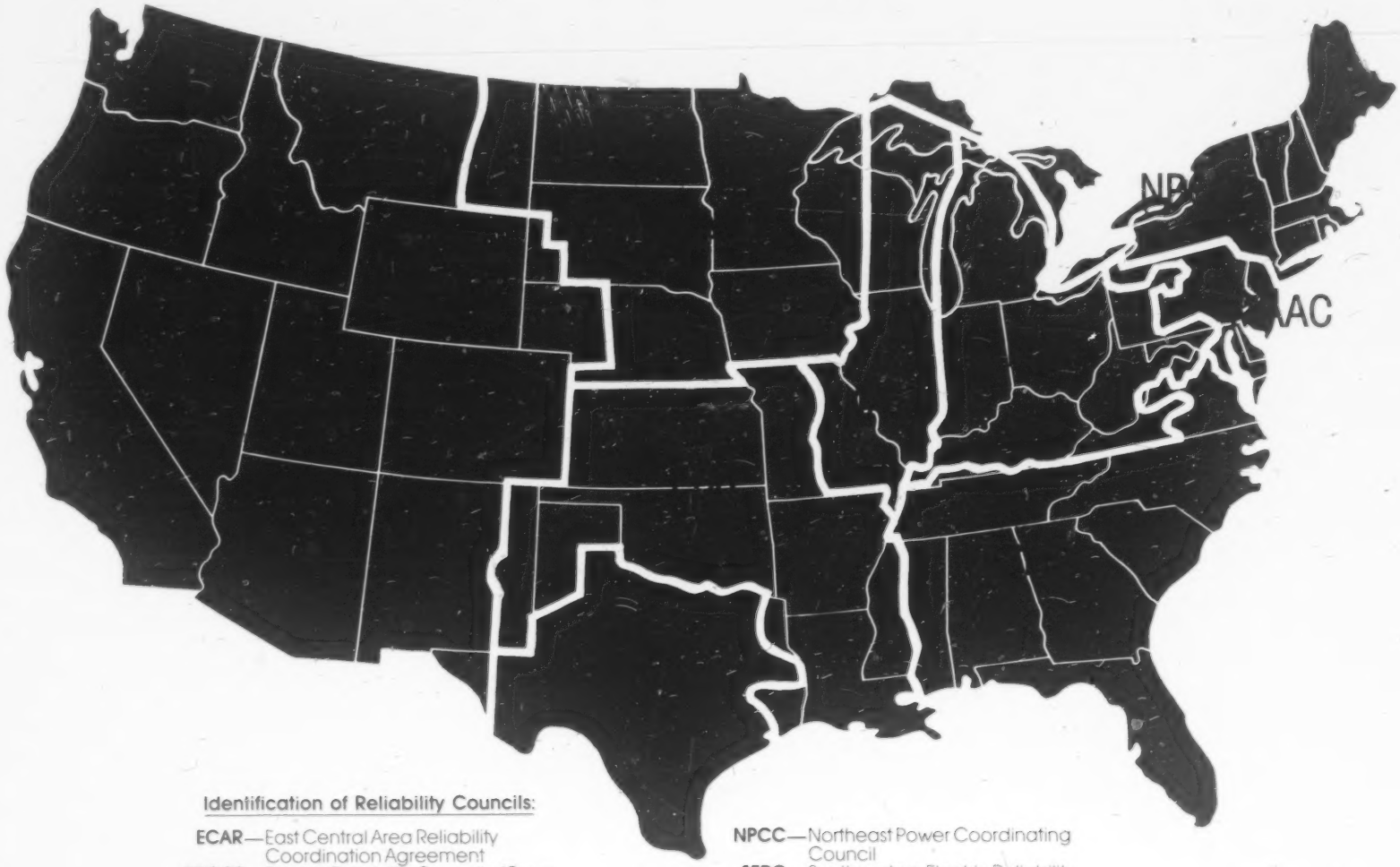
John Sharo, Rolls Royce, Inc., New York, New York
T. Shirasawa, Chairman, Japan Electric Power Survey Comm., Tokyo, Japan
Z. Stanley Stys, Brown Boveri Corp., North Brunswick, New Jersey
K. Yamawaki, Japan Electric Power Survey Comm., Tokyo, Japan
Hirokichi Yoshiyama, Hitachi, Ltd., Tokyo, Japan

Regional Reliability Councils of the National Electric Reliability Council



Identification of Reliability Councils:

ECAR—East Central Area Reliability Coordination Agreement
ERCOT—Electric Reliability Council of Texas
MACC—Mid-Atlantic Area Council
MAIN—Mid-America Interpool Network
MAPP—Mid-Continent Area Power Pool
NPCC—Northeast Power Coordinating Council
SERC—Southeastern Electric Reliability Council
SPP—Southwest Power Pool
WSCC—Western Systems Coordinating Council

Foreword 4

Summary of 1982 Accomplishment 4

Future Expansion Program 5
Manufacture of Heavy Electric Power Equipment 5

Part I. Electric Power Supply 6

Peak Capabilities, Peak Loads, and Capability Margins 6
Relationship Between Summer and December Peak Loads 10
Kilowatt-Hour Requirements and Annual Load Factors 11
Additions to Electric Generating Capacity 13
Nuclear Electric Power 16

Part II Manufacture of Heavy Electric Power Equipment 18

Manufacture of Electric Generating Equipment, Steam and Hydraulic Units—4,000 Kw and Larger 19
Manufacture of Steam Turbine-Generators—4,000 Kw and Larger 19
Manufacture of Conventional Steam Turbine-Generators—4,000 Kw and Larger 20
Manufacture of Nuclear Steam Turbine-Generators—50,000 Kw and Larger 21
Manufacture of Generators for Hydraulic Turbines—4,000 Kw and Larger 22
Manufacture of Conventional Steam Generators—450-Psi Pressure and Higher 22
Manufacture of Hydraulic Turbines—5,000 Horsepower and Larger 23
Manufacture of Power Transformers—501 Kva and Larger 24
Manufacture of Combustion Turbine-Generators—4,000 Kw and Larger 25
Manufacture of Nuclear Power Reactors—50,000 Kwe and Larger 25

Appendix I

1982 Additions to Electric Generating Capacity 26

Appendix II

Statistics Concerning the Domestic Manufacture of Heavy Electric Power Equipment 30

1982 YEAR-END POWER SURVEY

FOREWORD

This report presents information concerning the electric power supply, expansion of electric generating facilities, and the manufacture of heavy electric power equipment in the United States as of the end of 1982.

The historical data for 1981 and preceding years are an accurate presentation of the peak load, capability to meet load, and kilowatt-hour requirements for these time periods. Data for 1982 are the best figures available at this time. In view of considerations involving potential regulatory delays, unanticipated changes in environmental requirements, and other factors, it should be recognized that estimates of scheduled additions to generating capacity and shipments by equipment manufacturers may be subject to change.

The data are based on historical values published by NERC and on the 1982 year-end survey made by the Electric Power Survey Committee of the Edison Electric Institute in cooperation with representatives of the electric power systems or power areas throughout the contiguous United States, the nation's principal manufacturers of heavy electric power equipment, and foreign manufacturers of such equipment with orders from U.S. electric power systems.

Data in this survey represent the entire electric utility industry of the contiguous United States, including investor-owned systems and those of governmental agencies—Federal, Municipal and State & Local—and also rural electric cooperatives. With the switch from EEI-collected to NERC-collected ten-year projections of capability, peak, and kilowatt-hour data in the 1981 Annual Electric Power Survey, blow-up factors formerly used to expand the sum of the nine regions to values entitled "Total Electric Utility Industry of the Contiguous United States" were dropped as they were no longer considered necessary. Even though the December capability and peak values published in these Year-End Electric Power Surveys are obtained from EEI's own turn-of-year survey [rather than from NERC], the new format omitting a second set of expanded and rounded totals for the lower 48 states will be maintained.

The survey also includes industrial power installations whose operations are coordinated with the utility systems with which they are interconnected and which contribute to the public supply. It does not include any isolated industrial or institutional power installations.

Results pertaining to power system capabilities, peak loads, capability margins, and kilowatt-hour requirements are presented for each of the nine reliability councils of the North American Electric Reliability Council. Boundaries of the NERC councils are shown by the map in Fig. 1. The North American Electric Reliability Council encompasses essentially all utility systems in the United States and five Canadian provinces, but *the data presented in this survey cover only the systems in the contiguous United States.* Summations of these regional data are presented and referred to as "Survey Totals for the Nine Regions."

The data regarding summer 1982 peak loads and capabilities, and the 1982 kilowatt-hour requirements, are preliminary and subject to possible revision when more detailed records become available. Final values will be presented in the Committee's 1983 Annual Electric Power Survey report as of April 1, 1983.

Data in this survey report pertaining to the manufacture, in the United States, of heavy electric power equipment for all classes of customers represent substantially all such manufacture in this country.

Information concerning electric generating units ordered abroad for public utility service in the United States is furnished by representatives of foreign manufacturers as well as by the domestic power systems which have ordered them.

SUMMARY OF 1982 ACCOMPLISHMENT

During the year 1982, the electric power systems of the contiguous United States placed 13.3 million kilowatts of additional electric generating capacity into commercial operation. This includes all units of 4,000 kilowatt capacity and larger. Of this total, 16 units aggregating 0.6 million kilowatts are hydraulic, and 34 units aggregating 12.6 million kilowatts are thermal. One of the thermal units was powered by nuclear fuel. Twenty-four are conventional steam turbine-generators, 6 are combustion turbine-generators, and three are diesel engine-generators. The individual generating units that make up the 13.3 million kilowatts added during 1982 are identified in Appendix I. For the first time, the fossel-fired units in Appendix I carry indications of the primary and secondary fuels that they were designed to burn.

This newly added capacity contributed to the increase in the total capability, or load-carrying ability, of the U.S. electric power systems to 580.6 million kilowatts at the year end—an increase of 1.8 percent over the total at the end of 1981.

Of the total capability of 580.6 million kilowatts, approximately 88 percent is thermal and the rest hydraulic. During the past seven years, the total capability of the country's electric power systems has increased at an average annual rate of 2.7 percent.

The combined December 1982 peak load of the contiguous United States was 351.1 million kilowatts—2.7 percent below the December 1981 peak load. The change in December peak load during the past seven years, from December of 1975, was a net increase of 35.3 million kilowatts. This gives an average annual increase of 1.6 percent during the past seven years.

Of the thirteen reporting entities (regions and subregions) contributing data to this survey, only NEPOOL, VACAR, and WSCC reported normal weather at the time of their December peak load; the other 10 areas experienced warmer than normal temperatures.

The combined 1982 summer peak load, shown in Table II of this report, was 63.8 million kilowatts or 18.2 percent higher than the 1982 December peak load. This is the nineteenth consecutive year during which the combined summer peak load exceeded the peak of the following December.

The December 1982 margin of generating capability over peak load in the contiguous United States was 65.4 percent. It was higher by 26.1 percentage points than the capability margin that existed at the time of the 1982 summer peak load. This was brought about by the fact that the total capability at the time of the December 1982 peak load was 2,743 kilowatts higher than it was at the time of the 1982 summer peak load and, at the same time, the 1982 December peak load was 63.8 million kilowatts lower than the 1982 summer peak load.

During 1982 the kilowatt-hour requirement for the contiguous United States amounted to 2.3 trillion kilowatt-hours—2.3 percent lower than the output of

1981. During the past seven years, total kilowatt-hour requirements of the country's electric power systems have increased at an average annual rate of 2.5 percent.

The 1982 annual load factor for the sum of the nine regions was 62.1 percent.

Including the states of Alaska and Hawaii, and power sources maintained in the United States exclusively for industrial purposes, the nation's total electric generating capability was approximately 625 million kilowatts at the 1982 year-end.

FUTURE EXPANSION PROGRAM

During 1982 the electric power systems removed from the expansion program 7 nuclear units totaling 8,693 megawatts and 17 conventional steam turbine-generators totaling 11,524 megawatts. During the same twelve-month period the electric power systems also deferred by a year or more 33 steam turbine-generators, 300 megawatts or larger, totaling 24,062 megawatts, of which 11 units, totaling 11,303 megawatts, were nuclear.

As of January 1, 1983 the electric power systems serving the contiguous United States had on order with both domestic and foreign manufacturers, and scheduled for commercial operation during 1983 and later years, a total of 139.5 million kilowatts. This included 63 hydraulic units of both conventional and pump-storage type, totaling 5.3 million kilowatts. The thermal units include steam turbine-generators, of both conventional and nuclear types, combustion turbine-generators, and diesel engine-driven generators. Some of this capacity is on site and being installed; the remainder is under manufacture or in the form of firm orders.

An indeterminate number of units, amounting to several million kilowatts, are also on order but are either awaiting their first assignment of a scheduled date of commercial operation by the utility systems, or were once scheduled and have since been removed from the expansion program. It is probable that the majority of the orders in the second category [being held open as options by the manufacturers] will not be reactivated.

Of the total 133.5 million kilowatts of thermal capacity on order as of January 1, 1983, and scheduled for service, steam turbine-generators in sizes 700,000 kilowatts and larger account for 68.3 percent of the total. Among the units under 100,000 kilowatts, there are 8 steam turbine-generators with an aggregate capacity of 372 mw, 4 combustion turbine-generators, aggregating 301 mw, and one diesel engine-generator, rated at 4 mw.

MANUFACTURE OF HEAVY ELECTRIC POWER EQUIPMENT IN THE UNITED STATES

During 1982, orders for new electric generating units, steam and hydraulic, placed with domestic manufacturers by all classes of customers totaled only 12 machines aggregating 456 megawatts. U.S. electric utilities accounted for 22.3 percent of this total capacity. Orders placed in 1982 with foreign manufacturers by U.S. electric power systems consisted of eight generators for hydraulic turbines totaling 271 megawatts. No steam turbine-generators were ordered from foreign manufacturers during the year.

Production by domestic manufacturers during the year 1982 amounted to 10.0 million kilowatts, of which 7.3 million kilowatts were delivered to U.S. electric power systems. The total production scheduled as of January 1, 1983, for all classes of customers amounts to 162 units totaling 81.7 million kilowatts. The manufacturing schedules for 1983, 1984, and 1985 call for 14.0 million kilowatts, 9.8 million kilowatts, and 9.1 million kilowatts, respectively. The present 1986 and 1987 schedules are 6.5 million kilowatts and 10.5 million kilowatts. The 1988 and later schedule, up to now, calls for the production of 44 units totaling 31.7 million kilowatts.

PART 1/ELECTRIC POWER SUPPLY

PEAK CAPABILITIES, PEAK LOADS, AND RESERVE MARGINS

The December 1982 peak loads, the capability of the power systems at the time of these loads, and the corresponding capability margins are shown in Table I, page 8, together with data for each of the seven previous years. A graphic presentation of the December situation for the contiguous United States from 1948 through 1982 is shown on page 7.

The 1982 summer peak capabilities, peak loads, and capability margins are given in Table II, page 9, together with corresponding data for the previous seven years.

The 1982 kilowatt-hour requirements and annual load factors, together with corresponding data for the previous seven years, are given in Tables IV and V, page 11.

CAPABILITIES

Regional capabilities presented in this report are the sum of the actual load-carrying abilities of the systems, or power pools, serving the region at the time of the peak load with all power sources available, that is, without any allowance for outages that may have existed during the peak period. Allowances for any such outages are provided for by the capability margin, which is the difference between the full capability and the actual peak load. Where hydro generating facilities are involved, the regional capabilities shown take account of the actual hydro conditions prevailing during the peak period.

Included in the capabilities are the load-carrying abilities of those industrial power generating facilities that are interconnected with the utility systems, or power pools, and whose operations are coordinated with them. Also included is any capability from other sources which is assured to the utility systems, or power pools, during the peak period by contractual agreement. All such capability contributes, or may contribute, to the public supply.

Capabilities as presented herein, therefore, present a true picture of the load-carrying ability of facilities provided by the power systems to carry the peak loads.

These capabilities may differ from other compilations in which certain allowances for reserves have been made and in which the load-carrying ability of hydro equipment is based upon adverse water conditions. They may differ also from compilations of installed generating capacity based upon manufacturers' nameplate ratings of the generators, the prime movers, or the combinations of generator and prime mover.

Capability as used herein represents the actual load-carrying ability of the generating equipment and systems as a whole, as determined by actual experience, or, in the case of new equipment, estimated from the best available information.

PEAK LOADS

Regional peak loads as reported herein represent coincident peaks insofar as existing interconnecting facilities and operations make this meaningful and practicable. The regional peak loads given are the sum of the actual peaks of the systems serving the region, including formally organized power pools, interconnected system groups whose operations are coordinated, and, in some cases, smaller systems including certain municipals which operate independently or non-coordinated.

Where power pools or interconnected groups include industrial generating facilities whose operations are coordingted with those of the interconnected utilities, the loads on such facilities are included in the peak load of the group on a coincident basis.

Thus, the regional peak load data are representative of conditions as they actually existed irrespective of ownership of the systems or other statistical classification. These data are directly comparable with the regional capabilities presented in this report and discussed above.

CAPABILITY MARGINS

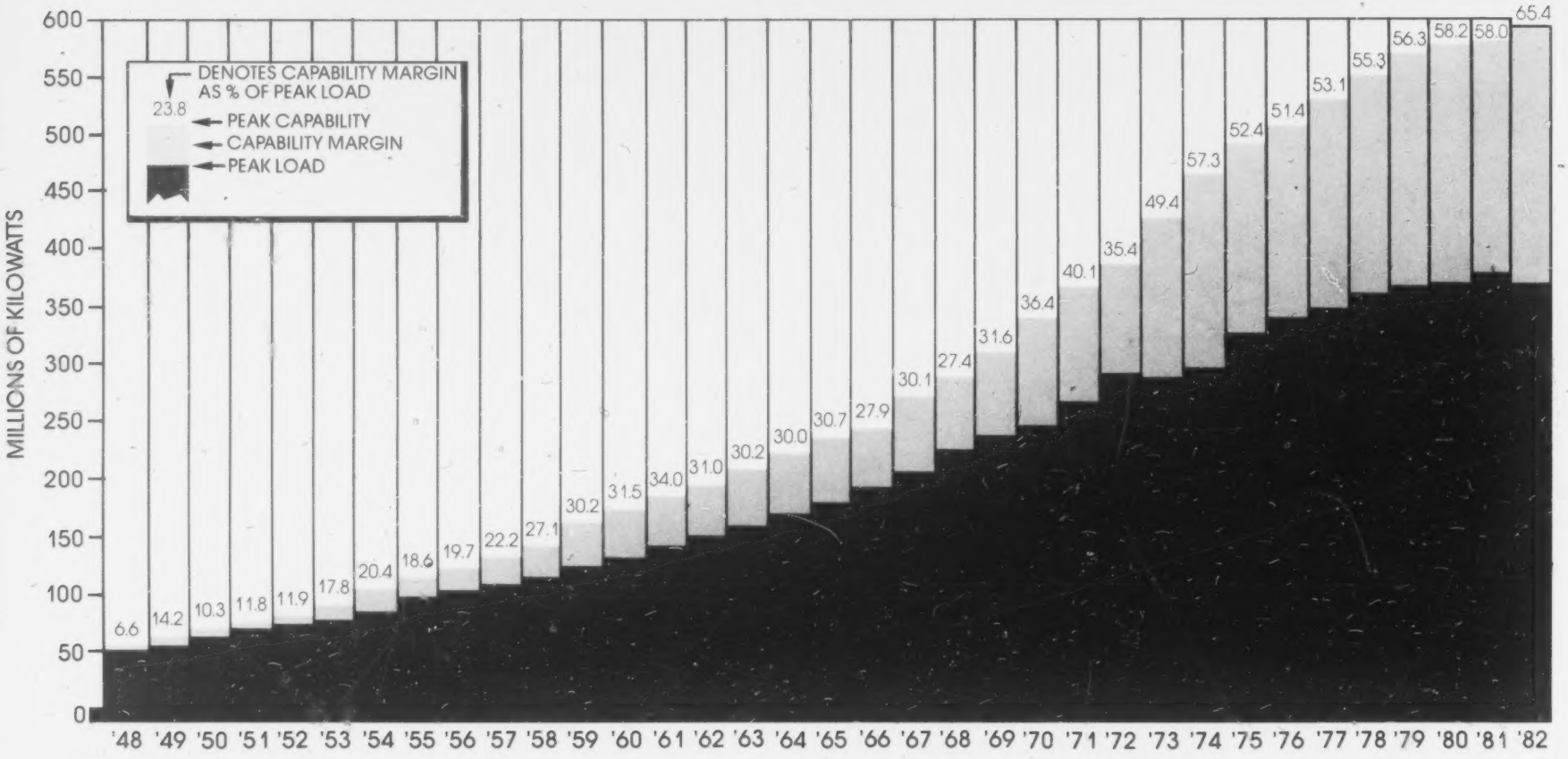
Capability margins, in megawatts, presented in this report represent the difference between capability and peak load as described above. Capability margin expressed in percentage terms is calculated by dividing this difference by the peak load.

Capability margins include the provisions for emergency outages, any necessary maintenance during peak periods and for system operating requirements. The remainder, after these needs are met, is available for unforeseen loads and for load growth.

It is well to keep in mind that maximum regional loads do not occur in all cases in summer—in some cases they occur in December or January. Thus, while the capability margin for the country as a whole in summer gives a true picture of the electric power situation *at that time*, it does not reflect the fact that maximum regional loads in some cases have occurred in winter. Likewise, the December capability margins shown in this report for the total of the nine regions do not reflect the fact that maximum regional loads in some cases have occurred in summer.

It is also true that the regional capability margins [and hence the capability margin for the sum of the regions] in summer or winter have not always represented the minimum or the maximum capability margin. The extremes of capability margins may be influenced, for example, by the date of bringing new large generating facilities into commercial operation in relation to the time of the annual peak loads—the addition of a very large generating unit just before the peak could give a larger capability margin during the peak period than that which existed before the time of peak. Also, in areas having high proportions of hydroelectric generating capacity, the lowest margins may occur at times other than when the load is at a maximum because of low capability resulting from minimum water for power generation.

December Peak Capabilities, Peak Loads, and Capability Margins—Total Electr c Utility Industry of the Contiguous United States.



Peak Capability represents the maximum kilowatt output with all power sources available. It must, therefore, provide the necessary allowance for maintenance, emergency outages and system operating requirements.

Capability Margin includes the provision for maintenance, emergency outages and system operating requirements. Any remainder, after these needs are met, is available for unforeseen loads.

Note: All values indicated are for December and do not reflect the fact that the maximum loads in some regions occur in summer.

Table I DECEMBER CAPABILITIES, PEAK LOADS, AND RESERVE MARGINS (Thousands of Kilowatts)

Regions		1975	1976	% Inc	1977	% Inc	1978	% Inc	1979	% Inc	1980	% Inc	1981	% Inc	1982[1]	% Inc
NPCC	Capability	48,265	51,360	7.0	52,167	1.0	52,850	1.3	53,152	0.6	52,897	0.5–	53,028	0.2	53,570	1.0
	Peak Load	31,607	33,804	7.0	33,767	0.1–	33,674	0.3–	34,622	2.8	33,780	2.4–	32,957	2.4–	34,590	5.0
	Capability Margin	16,658	17,826		18,400		19,176		18,530		19,117		20,071		18,980	
	Capability Margin, %	52.7*	52.7*		54.5*		56.9*		53.5*		56.6*		60.9*		54.9*	
MAAC	Capability	43,786	44,183	0.9	47,034	6.5	47,292	0.5	45,039	4.8–	45,379	0.8	45,393	0.0	45,774	0.8
	Peak Load	24,704	26,649	7.9	26,723	0.3	26,806	0.3	27,858	3.9	27,550	1.1–	27,393	0.6–	27,062	1.2–
	Capability Margin	19,082	17,534		20,311		20,486		17,181		17,829		18,000		18,712	
	Capability Margin, %	77.2*	65.8*		76.0*		76.4*		61.7*		64.7*		65.7*		69.1*	
ECAR	Capability	75,085	77,799	3.6	83,450	7.3	87,540	4.9	88,893	1.5	90,850	2.2	89,655	1.3–	90,518	1.0
	Peak Load	53,500	57,465	7.4	59,136	2.9	58,500	1.1–	60,302	3.1	58,671	2.7–	56,093	4.4–	53,071	5.4–
	Capability Margin	21,585	20,334		24,314		29,040		28,591		32,179		33,562		37,447	
	Capability Margin, %	40.3*	35.4		41.1*		49.6*		47.4*		54.8*		59.8*		70.6*	
SERC	Capability	100,114	101,974	1.9	106,987	4.9	109,487	2.3	115,475	5.5	113,950	1.3–	111,104	2.5–	112,000	0.8
	Peak Load	70,977	72,609	2.3	74,784	3.0	72,578	2.9–	74,963	3.3	77,130	2.9	80,856	4.8	75,583	6.5–
	Capability Margin	29,137	29,365		32,203		36,909		40,512		36,820		30,248		36,417	
	Capability Margin, %	41.1*	40.4*		43.1*		50.9*		54.0*		47.7*		37.4*		48.2*	
MAIN	Capability	37,594	37,904	0.8	39,414	4.0	41,564	5.5	45,048	8.4	39,399	12.5–	39,798	1.0	40,597	2.0
	Peak Load	24,501	24,590	0.4	26,281	6.9	26,802	2.0	27,127	1.2	25,875	4.6–	25,908	0.1	24,175	6.7–
	Capability Margin	13,093	13,314		13,133		14,762		17,921		13,524		13,890		16,422	
	Capability Margin, %	53.4*	54.1*		50.0*		55.1*		66.1*		52.3*		53.6*		67.9*	
SPP	Capability	39,787	39,772	0.0–	42,244	6.2	44,871	6.2	46,462	3.5	51,216	10.2	53,994	5.4	58,131	7.7
	Peak Load	23,405	23,421	0.1	25,226	7.7	26,800	6.2	28,810	7.5	28,770	0.1–	30,965	7.6	29,307	5.4–
	Capability Margin	16,382	16,351		17,018		18,071		17,652		22,446		23,029		28,824	
	Capability Margin, %	70.0*	69.8*		67.5*		67.4*		61.3*		78.0*		74.4*		98.4*	
ERCOT	Capability	33,168	34,332	3.5	36,780	7.1	39,774	8.1	40,776	2.5	43,179	5.9	43,206	0.1	44,258	2.4
	Peak Load	16,136	17,389	7.8	17,950	3.2	20,805	15.9	21,477	3.2	21,658	0.8	23,030	6.3	22,161	3.8–
	Capability Margin	17,032	16,943		18,830		18,969		19,299		21,521		20,176		22,097	
	Capability Margin, %	105.6*	97.4*		104.9*		91.2*		89.9*		99.4*		87.6*		99.7*	
	†Net Margin, %	27.2	48.7		61.3		30.8		37.6		54.5		59.4		N.A.	
MAPP	Capability	19,252	20,246	5.2	21,802	7.7	22,961	5.3	25,077	9.2	26,948	7.5	27,992	3.9	28,468	1.7
	Peak Load	13,237	13,429	1.5	14,676	9.3	15,491	5.6	15,741	1.6	16,409	4.2	16,513	0.6	16,513	0.0
	Capability Margin	6,015	6,817		7,126		7,470		9,336		10,539		11,479		11,955	
	Capability Margin, %	45.4*	50.8*		48.6*		48.2*		59.3*		64.2*		69.5*		72.4*	
WSCC	Capability	84,252	90,216	7.1	90,767	0.6	97,425	7.3	98,860	1.5	104,101	5.3	106,005	1.8	107,254	1.2
	Peak Load	57,727	59,684	3.4	61,525	3.1	68,611	11.5	66,495	3.1–	69,223	4.1	67,195	2.9–	68,601	2.1
	Capability Margin	26,525	30,532		29,242		28,814		32,365		34,878		38,810		38,653	
	Capability Margin, %	45.9*	51.2*		47.5*		42.0*		48.7*		50.4*		57.8*		56.3*	
Survey Total for the Nine Regions[2]	Capability	481,303	498,056	3.5	520,645	4.5	543,764	4.4	558,782	2.8	567,919	1.6	570,175	0.4	580,570	1.8
	Annual Increase		16,753		22,589		23,119		15,018		9,137		2,256		10,395	
	Peak Load	315,794	329,040	4.2	340,068	3.4	350,247	3.0	357,395	2.0	359,066	0.5	360,910	0.5	351,063	2.7–
	Annual Increase		13,246		11,028		10,179		7,148		1,671		1,844		9,847–	
	Capability Margin	165,509	169,016		180,577		193,517		201,387		208,853		209,265		229,507	
	Capability Margin, %	52.4	51.4		53.1		55.3		56.3		58.2		58.0		65.4	

*Peak occurred in Summer

†Percent Net Margin based on capability available for load after deductions for scheduled maintenance, seasonal unavailability of fuel, etc.

[1]Preliminary

[2]These values are the sum of the regional survey totals for December and do not reflect the fact that maximum loads in some regions occur in summer as indicated.

Table II SUMMER CAPABILITIES, PEAK LOADS, AND RESERVE MARGINS (Thousands of Kilowatts)

Regions		1975	1976	% Inc	1977	% Inc	1978	% Inc	1979	% Inc	1980	% Inc	1981	% Inc	1982[1]	% Inc
NPCC	Capability	45,960	48,872	6.3	47,011	3.8	50,711	7.9	51,778	2.1	52,038	0.5	51,752	0.5	50,400	2.6
	Peak Load	32,875	32,378	1.5	35,448	9.5	34,876	1.6	34,673	0.6	36,831	6.2	35,640	3.2	36,427	2.2
	Capability Margin	13,085	16,494		11,563		15,835		17,105		15,207		16,112		13,973	
	Capability Margin, %	39.8	50.9		32.6		45.4		49.3		41.3		45.2		38.4	
MAAC	Capability	40,245	41,636	3.5	44,492	6.9	44,613	0.3	44,633	0.0	45,137	1.1	44,962	0.4	45,796	1.9
	Peak Load	28,969	29,264	1.0	32,306	10.4	31,812	1.5	31,780	0.1	34,525	8.6	33,633	2.6	33,846	0.6
	Capability Margin	11,276	12,372		12,186		12,801		12,853		10,612		11,329		11,950	
	Capability Margin, %	38.9	42.3		37.7		40.2		40.4		30.7		33.7		35.3	
ECAR	Capability	75,510	76,204	0.9	79,447	4.3	86,469	8.8	86,532	0.1	87,416	1.0	89,902	2.8	89,489	0.5
	Peak Load	55,413	55,765	0.6	62,306	11.7	62,454	0.2	61,716	1.2	63,021	2.1	64,150	1.8	59,668	7.0
	Capability Margin	20,097	20,439		17,141		24,015		24,816		24,395		25,752		29,821	
	Capability Margin, %	36.3	36.7*		27.5		38.5		40.2		38.7		40.1		50.0	
SERC	Capability	93,533	96,027	2.6	99,837	4.0	105,183	5.4	108,392	3.1	110,220	1.7	113,775	3.2	120,749	6.1
	Peak Load	73,359	74,286	1.3	79,502	7.0	81,689	2.8	83,209	1.9	89,815	7.9	90,513	0.8	86,229	4.7
	Capability Margin	20,194	21,741		20,335		23,494		25,183		20,405		23,262		34,520	
	Capability Margin, %	27.5	29.3		25.6		28.8		30.3		22.7		25.7		40.0	
MAIN	Capability	38,291	40,826	6.6	40,505	0.8	42,294	4.4	44,395	5.0	42,737	3.7	41,104	3.8	41,145	0.1
	Peak Load	28,788	30,510	6.0	32,560	6.7	33,222	2.0	33,751	1.6	33,894	0.4	32,561	3.9	31,394	3.6
	Capability Margin	9,503	10,316		7,945		9,072		10,644		8,843		8,543		9,751	
	Capability Margin, %	33.0	33.8		24.4		27.3		31.5		26.1		26.2		31.1	
SPP	Capability	42,054	43,258	2.9	45,108	4.3	47,860	6.1	47,661	0.4	51,509	8.1	55,889	8.5	57,519	2.9
	Peak Load	30,556	33,764	10.5	36,426	7.9	39,191	7.6	37,607	4.0	44,981	19.6	44,623	0.8	43,064	3.5
	Capability Margin	11,498	9,494		8,682		8,669		10,054		6,528		11,266		14,455	
	Capability Margin, %	37.6	28.1		23.8		22.1		26.7		14.5		25.2		33.6	
ERCOT	Capability	32,055	33,600	4.8	36,440	8.5	39,099	7.3	40,085	2.5	42,248	5.4	42,080	0.4	42,529	1.1
	Peak Load	23,525	25,400	8.0	26,819	5.6	28,645	6.8	27,828	2.9	31,722	14.0	32,535	2.6	33,231	2.1
	Capability Margin	8,530	8,200		9,621		10,454		12,257		10,526		9,545		9,298	
	Capability Margin, %	36.3	32.3		35.9		36.5		44.0		33.2		29.3		28.0	
MAPP	Capability	18,464	19,920	7.9	21,671	8.8	21,963	1.3	23,972	9.1	26,268	9.6	28,200	7.4	28,200	0.0
	Peak Load	14,503	14,938	3.0	16,873	13.0	18,021	6.8	18,132	0.6	19,378	6.9	18,985	2.0	19,470	2.6
	Capability Margin	3,961	4,982		4,798		3,942		5,840		6,890		9,215		8,730	
	Capability Margin, %	27.3	33.4		28.4		21.9		32.2		35.6		48.5		44.8	
WSCC	Capability	81,831	86,643	5.9	89,399	3.2	94,719	6.0	97,880	3.3	100,966	3.2	104,392	3.4	102,000	2.3
	Peak Load	60,330	65,772	9.0	64,926	1.3	68,719	5.8	69,728	1.5	72,891	0.3	75,655	3.8	71,580	5.4
	Capability Margin	21,501	20,871		24,473		26,000		28,152		28,075		28,737		30,420	
	Capability Margin, %	35.6	31.7		37.7		37.8		40.4		38.5		38.0		42.5	
Survey Total for the Nine Regions[2]	Capability	467,963	486,986	4.1	503,910	3.5	532,911	5.8	545,328	2.3	558,539	2.4	572,056	2.4	577,827	1.1
	Annual Increase		19,023		16,924		29,001		12,417		13,211		13,517		5,771	
	Peak Load	348,318	362,077	4.0	387,166	6.9	398,629	3.0	398,424	0.1	427,058	7.2	428,295	0.3	414,909	3.1
	Annual Increase		13,759		25,089		11,463		205		28,634		1,237		13,386	
	Capability Margin	119,645	124,909		116,744		134,282		146,904		131,481		143,761		162,918	
	Capability Margin, %	34.3	34.5		30.2		33.7		36.9		30.8		33.6		39.3	

*Peak load occurred in December

[1]Preliminary

[2]These values are the sum of the regional survey totals for summer and do not reflect the fact that maximum loads in some regions occur in December as indicated.

RELATIONSHIP BETWEEN SUMMER AND DECEMBER PEAK LOADS

The relationship between the summer and December peak loads in the various reliability regions of the country, and also in the country as a whole for the year 1982, is shown in the following tabulation together with similar data for eleven previous years. In this tabulation the summer peak load in each case is expressed as a percentage of the December peak load for the same calendar year.

Through the first half of the 1960's, the magnitude of the summer peak load for more than half of the regions was characteristically about the same as that of the peak during the December which followed. Therefore, the former expressed as a percentage of the latter gave a value close to 100 percent. In those regions where the summer peak load was characteristically higher than the peak during the following December, the percentage figure was naturally above 100 percent.

After 1964 there was a departure from the equality of summer and December peaks experienced in the early 1960's. In most regions summer peaks generally exceeded the peaks for the December that followed by increasing amounts. As can be seen from the tabulation, the summer/December ratio jumped to 119 percent in 1973, due to the unprecedented drop in the December peak from the year previous. There was a change of only one percentage point in the relationship between the summer and December peak loads in 1974. The ratio dropped back to a more normal 110 percent in 1975 and 1976, rose to 113 percent in 1977, 114 percent in 1978, and declined to 113 percent in 1979.

In 1980, a hot summer and depressed year-end economic conditions resulted in a national summer/December ratio that matched the record 119 percent experienced in 1973. In 1981, the ratio between the two seasonal peaks held at 119, but the 1981 disparity was more a function of the December peak increasing only 0.5 percent for the second year in a row due to depressed economic conditions, and not to a hot summer. In 1982 the December peak load dropped 2.7 percent and the summer peak fell 3.1 percent. The relatively greater drop in the summer peak caused the summer/December ratio to recede to 118 percent in 1982.

Table III SUMMER PEAK LOADS EXPRESSED AS PERCENTAGE OF PEAK LOAD FOR THE FOLLOWING DECEMBER

Regions	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982[1]
NPCC	101	98	114	105	104	96	105	104	100	109	108	105
MAAC	118	118	133	124	117	110	121	119	114	125	123	125
ECAR	107	103	112	105	104	97	105	107	102	107	114	112
SERC	109	108	109	114	103	102	106	113	111	116	112	114
MAIN	125	121	134	127	117	124	124	124	124	131	126	130
SPP	146	143	143	156	131	144	144	146	131	156	144	147
ERCOT	149	146	149	160	138	146	149	138	130	146	141	150
MAPP	112	110	120	119	110	111	115	116	115	118	115	118
WSCC	97	96	111	111	105	110	106	100	105	105	113	104
Total Electric Utility Industry of the Contiguous United States	112	110	119	118	110	110	114	114	111	119	119	118

[1]Preliminary

ANNUAL KILOWATT-HOUR REQUIREMENTS AND ANNUAL LOAD FACTORS

The 1982 kilowatt-hour requirements and annual load factors by reliability councils are given in Tables IV and V, together with corresponding information for the previous seven years.

The kilowatt-hour requirement represents utility net generation plus kilowatt-hours received from outside sources, including net imports from Canada and Mexico and energy from certain industrial installations which are interconnected and coordinated with the utility systems and which contribute to the public supply.

Table V ANNUAL LOAD FACTOR, %

Regions	1975	1976	1977	1978	1979	1980	1981	1982[1]
NPCC	63.0	64.1	62.5	65.1	66.4	63.0	64.9	63.1
MAAC	59.7	62.1	58.0	60.9	61.6	57.9	59.3	57.9
ECAR	67.0	69.9	67.0	66.7	70.1	66.2	65.2	66.4
SERC	60.6	63.4	63.1	62.7	63.0	60.8	61.0	61.8
MAIN	57.5	56.6	56.5	58.0	57.9	55.8	57.1	57.5
SPP	57.6	54.5	56.3	55.8	58.2	54.0	54.2	56.1
ERCOT	56.3	55.8	58.1	58.7	61.8	58.3	57.9	58.3
MAPP	63.3	61.7	58.0	58.6	60.8	56.6	57.9	56.9
WSCC	67.7	66.7	67.8	66.4	69.5	67.0	67.6	69.4
Survey Total for the Nine Regions	62.3	63.6	62.4	63.1	64.4	61.1	61.6	62.1

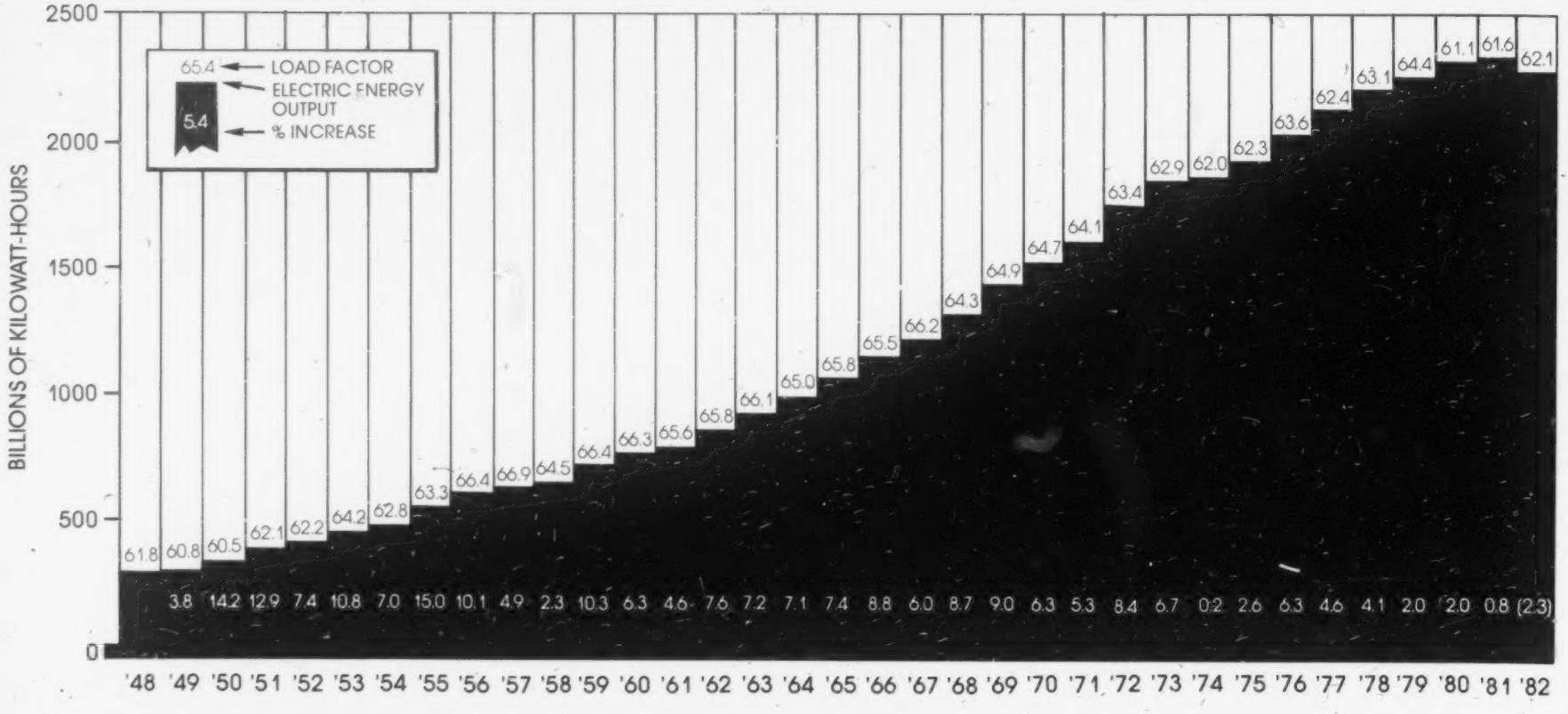
[1]Preliminary

Table IV ANNUAL KILOWATT-HOUR REQUIREMENTS, Millions

Regions	1975	1976	% Inc	1977	% Inc	1978	% Inc	1979	% Inc	1980	% Inc	1981	% Inc	1982[1]	% Inc
NPCC	181,494	190,300	4.9	194,212	2.1	198,918	2.4	201,708	1.4	203,954	1.1	202,620	0.7–	201,377	0.6–
MAAC	151,439	159,679	5.4	164,135	2.8	169,766	3.4	171,567	1.1	175,622	2.4	174,668	0.5–	171,662	1.7–
ECAR	325,100	352,865	8.5	365,526	3.6	369,928	1.2	379,018	2.5	366,198	3.4–	366,376	0.0	347,091	5.3–
SERC	389,182	413,960	6.4	442,541	6.9	453,213	2.4	459,420	1.4	479,715	4.4	483,595	0.8	466,832	3.5–
MAIN	144,966	151,623	4.6	161,081	6.2	168,808	4.8	171,052	1.3	166,116	2.9–	162,899	1.9–	158,116	2.9–
SPP	154,223	161,769	4.9	179,549	11.0	191,550	6.7	191,762	0.1	213,381	11.3	211,833	0.7–	211,595	0.1–
ERCOT	115,989	124,600	7.4	136,413	9.5	147,371	8.0	150,533	2.1	162,327	7.8	164,920	1.6	169,769	2.9
MAPP	80,428	80,997	0.7	85,745	5.9	92,477	7.9	96,518	4.4	96,422	0.1–	96,307	0.1–	96,992	0.7
WSCC	357,849	385,473	7.7	385,887	0.1	410,135	6.3	425,349	3.7	428,983	0.9	447,788	4.4	435,310	2.8–
Survey Totals for the Nine Regions	1,900,670	2,021,266	6.3	2,115,089	4.6	2,202,166	4.1	2,246,927	2.0	2,292,718	2.0	2,311,006	0.8	2,258,744	2.3–
Annual Increase		120,596		93,823		87,077		44,761		45,791		18,288		52,262–	

[1]Preliminary

Electric Energy Output and Annual Load Factors—Total Electric Utility Industry of the Contiguous United States



ADDITIONS TO ELECTRIC GENERATING CAPACITY

The 1982 additions to electric generating capacity in the contiguous United States are shown in the top part of Table VI according to the type of generating units. The second portion of the table presents the same information arranged according to the reliability councils in which the new capacity was installed. The third portion of the table reports the same information classified according to ownership of the new units.

The top line of Table VII shows the total scheduled additions to electric generating capacity in the lower forty-eight United States as of January 1, 1983.

The second portion of Table VII shows the schedule arranged according to the expected year of commercial operation. The third portion of the table arranges the same information according to reliability councils in which the installations are scheduled to be made. The fourth part of the table presents the same data in terms of ownership of the equipment.

The accompanying bar chart shows the number and aggregate capacity of new thermal and hydraulic generating units placed in commercial operation in the contiguous United States during the years 1971 through 1982 and those scheduled for commercial operation during 1983 and later years.

The number and aggregate capacity of the thermal units in the expansion program as of January 1, 1983, are shown in the accompanying table entitled "Number and Aggregate Capacity of Thermal Units in Expansion Program, Grouped According to Size Range as of January 1, 1983."

Table VI 1982 ADDITIONS TO ELECTRIC GENERATING CAPACITY In Terms of Manufacturers' Ratings of the Units

	Thermal								Hydraulic					
	Steam Turbine-Generators				Combustion Turbine-Generators		Diesel Engine Generators							
	Conventional		Nuclear						Conventional		Pumped Storage		Total	
	No. of Units	Kw	No. of Units	Kw	No. of Units	Kw	No. of Units	Kw	No. of Units	Kw	No. of Units	Kw	No. of Units	Kw
TOTAL 1982 ADDITIONS	24	11,057,006	1	1,183,192	6	389,340	3	18,881	14	552,900	2	53,934	50	13,255,253
ADDITIONS BY REGION														
NPCC	—	—	—	—	2	147,860	—	—	1	12,600	—	—	3	160,460
MAAC	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ECAR	5	2,281,894	—	—	1	26,050	1	6,000	1	25,000	—	—	8	2,388,944
SERC	3	1,816,854	1	1,183,192	1	35,790	1	8,081	—	—	—	—	6	3,043,917
MAIN	1	550,000	—	—	—	—	—	—	—	—	—	—	1	550,000
SPP	6	3,164,977	—	—	1	96,440	1	4,800	—	—	2	53,934	10	3,320,151
ERCOT	2	961,000	—	—	—	—	—	—	—	—	—	—	2	961,000
MAPP	3	793,318	—	—	—	—	—	—	—	—	—	—	3	793,318
WSCC	4	1,488,963	—	—	1	83,200	—	—	12	515,300	—	—	17	2,087,463
ADDITIONS BY OWNERSHIP														
Investor-Owned	14	7,324,834	—	—	3	205,690	—	—	2	37,600	—	—	19	7,568,124
Federal	—	—	1	1,183,192	—	—	—	—	6	399,000	2	53,934	9	1,636,126
Municipal	3	498,854	—	—	3	183,650	3	18,881	4	56,200	—	—	13	757,585
Cooperative	5	2,550,000	—	—	—	—	—	—	—	—	—	—	5	2,550,000
State and Local	2	683,318	—	—	—	—	—	—	2	60,100	—	—	4	743,418

Table VII SCHEDULED ADDITIONS TO ELECTRIC GENERATING CAPACITY BASED ON SCHEDULED DATES OF COMMERCIAL OPERATION AS OF JANUARY 1, 1983 In Terms of Manufacturers' Ratings of the Units

	Thermal								Hydraulic					
	Steam Turbine-Generators				Combustion Turbine-Generators		Diesel Engine Generators							
	Conventional		Nuclear						Conventional		Pumped Storage		Total	
	No. of Units	Kw	No. of Units	Kw	No. of Units	Kw	No. of Units	Kw	No. of Units	Kw	No. of Units	Kw	No. of Units	Kw
TOTAL SCHEDULED	115	61,887,329	62	70,222,463	7	1,384,580	1	4,300	46	1,861,058	17	4,136,668	248	139,496,398
SCHEDULED ADDITIONS BY YEARS—As of January 1, 1983														
1983	15	6,002,980	13	13,771,321	4	300,880	1	4,300	25	861,982	3	1,050,000	61	21,991,463
1984	20	9,831,160	14	15,500,768	—	—	—	—	7	387,000	2	57,967	43	25,776,895
1985	17	7,685,449	9	10,575,796	—	—	—	—	12	568,326	6	1,130,901	44	19,960,472
1986	10	6,119,172	10	11,574,758	1	224,500	—	—	2	43,750	3	1,050,000	26	19,012,180
1987	9	5,703,247	5	6,092,577	—	—	—	—	—	—	3	847,800	17	12,643,624
1988	13	7,615,819	5	5,985,842	—	—	—	—	—	—	—	—	18	13,601,661
1989 and later	31	18,929,502	6	6,721,401	2	859,200	—	—	—	—	—	—	39	26,510,103
SCHEDULED ADDITIONS BY REGIONS														
NPCC	3	1,414,565	5	5,615,596	—	—	—	—	5	41,050	—	—	13	7,071,211
MAAC	5	3,054,008	5	5,471,770	—	—	—	—	5	168,750	—	—	15	8,694,528
ECAR	16	10,125,365	9	9,043,614	—	—	—	—	1	25,000	—	—	26	19,193,979
SERC	17	10,967,978	14	14,936,239	—	—	—	—	14	734,012	9	2,947,800	54	29,586,029
MAIN	4	1,494,012	8	9,170,749	1	224,500	—	—	—	—	—	—	13	10,889,261
SPP	15	9,396,509	5	5,957,233	2	108,000	1	4,300	1	27,000	5	138,868	29	15,631,910
ERCOT	16	9,954,499	4	4,945,412	—	—	—	—	2	66,000	—	—	22	14,965,911
MAPP	7	3,399,427	—	—	—	—	—	—	1	49,970	—	—	8	3,449,397
WSCC	32	12,080,966	12	15,081,850	4	1,052,080	—	—	17	749,276	3	1,050,000	68	30,014,172
SCHEDULED ADDITIONS BY OWNERSHIP														
Investor-Owned	77	43,789,204	54	61,094,969	4	1,052,080	—	—	17	644,312	12	3,997,800	164	110,578,365
Federal	—	—	5	5,289,755	—	—	—	—	18	957,000	5	138,868	28	6,385,623
Municipal	12	5,755,278	—	—	2	108,000	1	4,300	7	160,376	—	—	22	6,027,954
Cooperative	18	8,977,334	—	—	1	224,500	—	—	—	—	—	—	19	9,201,834
State and Local	8	3,365,513	3	3,837,739	—	—	—	—	4	99,370	—	—	15	7,302,622

The accompanying bar chart shows the number and aggregate capacity of new thermal and hydraulic generating units placed in commercial operation in the contiguous United States during the years 1971 through 1982 and those scheduled for commercial operation during 1983 and later years.

The number and aggregate capacity of the thermal units in the expansion program as of January 1, 1983, are shown in the accompanying table entitled "Number and Aggregate Capacity of Thermal Units in Expansion Program, Grouped According to Size Range as of January 1, 1983."

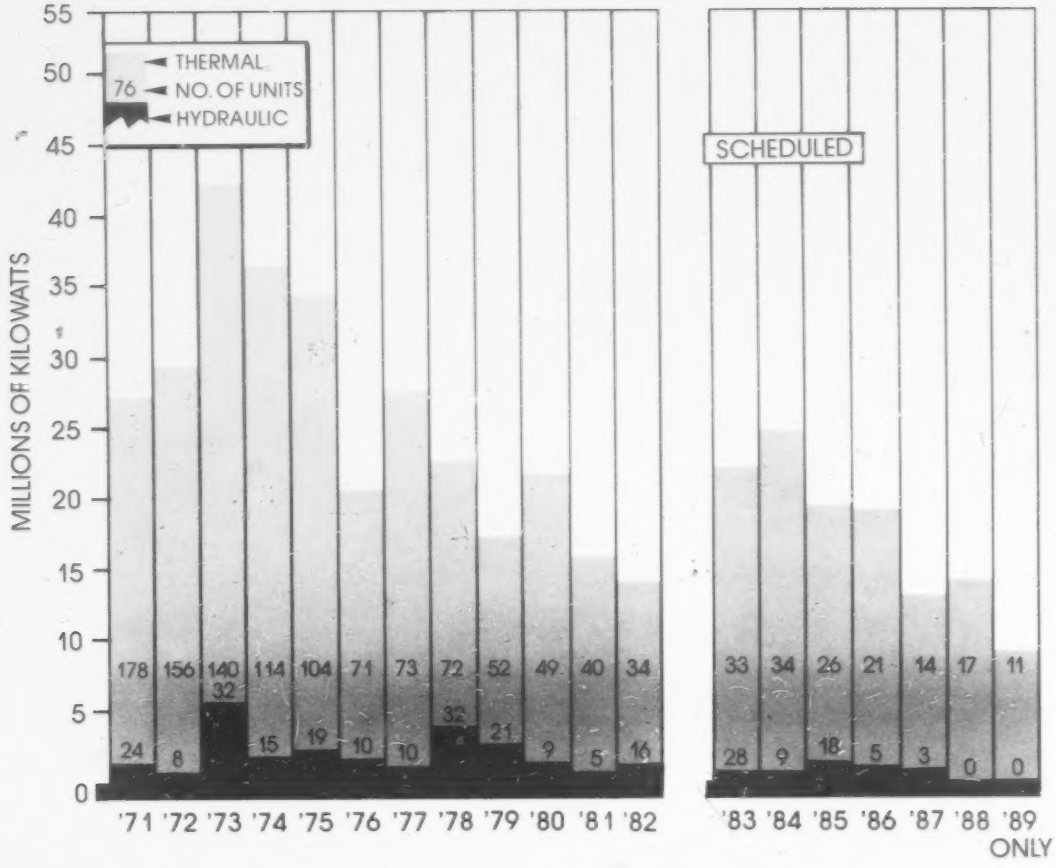


Table VIII NUMBER AND AGGREGATE CAPACITY OF THERMAL UNITS IN EXPANSION PROGRAM GROUPED ACCORDING TO SIZE RANGE AS OF JANUARY 1, 1983 IN TERMS OF MANUFACTURERS' RATINGS OF THE UNITS

Size Range, Kw	No. of Units	Aggregate Capacity, Kw	% of Total
1,300,000 Kw and Larger	13	17,273,407	12.9
1,200,000 to 1,299,999	10	12,217,617	9.2
1,100,000 to 1,199,999	25	28,947,137	21.7
1,000,000 to 1,099,999	4	4,354,232	3.3
900,000 to 999,999	5	4,836,428	3.6
800,000 to 899,999	17	14,055,918	10.5
700,000 to 799,999	13	9,427,395	7.1
600,000 to 699,999	27	17,520,501	13.1
500,000 to 599,999	25	13,252,838	9.9
400,000 to 499,999	13	5,505,174	4.1
300,000 to 399,999	9	3,284,971	2.5
200,000 to 299,999	6	1,429,474	1.1
100,000 to 199,999	5	716,000	.5
Under 100,000	13	677,580	.5
Total Thermal Units	185	133,498,672	100.0

NUCLEAR ELECTRIC POWER

As of the date of this survey, there were 76 nuclear units in commercial operation with a total winter rating of 56.8 million kilowatts. The individual units are listed in the accompanying tabulation. One unit, rated at 1,148 megawatts, came on line in 1982.

During 1982, no nuclear power reactors or nuclear steam turbine-generators were ordered by U.S. electric power systems. The last reactor orders were placed in 1978. The last orders for nuclear steam turbine-generators were booked in 1976.

As of January 1, 1983, nuclear capacity accounts for 50 percent of the aggregate of the industry's scheduled expansion program. The capacity on order from both domestic and foreign manufacturers and scheduled for commercial operation by U.S. electric power systems totals 12.6 million kilowatts in 1983 and 16.7 million kilowatts in 1984; in 1985 it stands at 10.6 million kilowatts. For 1986 and 1987, scheduled additions by U.S. power systems are 11.6 and 6.1 million kilowatts. For 1988 and later, scheduled additions by the U.S. electric power systems are pegged at 12.7 million kilowatts.

Table X NUCLEAR POWER UNITS IN THE CONTIGUOUS U.S. AS OF JANUARY 1, 1983

Name of System or Sponsor	Name or Location	Capability-MW Summer	Capability-MW Winter	Type of Reactor	Placed in Commercial Operation
Duquesne Light Company	Shippingport No. 1	60	60	LWBR	1957
Commonwealth Edison Company	Dresden No. 1	197	207	BWR	1960
Yankee Atomic Electric Company	Yankee No. 1	175	176	PWR	1961
Consumers Power Company	Big Rock Point	63	63	BWR	1962
Pacific Gas & Electric Company	Humboldt Bay	63	63	BWR	1963
Washington Public Power Supply System	Hanford	840	840	GMWC	1966
Connecticut Yankee Atomic Power Company	Haddam No. 1	555	580	PWR	1968
Southern California Edison Company and San Diego Gas & Electric Company	San Onofre No. 1	436	436	PWR	1968
Jersey Central Power & Light Company	Oyster Creek No. 1	620	650	BWR	1969
Niagara Mohawk Power Corporation	Nine Mile Point No. 1	610	610	BWR	1969
Rochester Gas and Electric Corporation	Ginna No. 1	470	470	PWR	1969
Northeast Utilities	Millstone Point No. 1	654	660	BWR	1970
Wisconsin Electric Power Company	Point Beach No. 1	495	495	PWR	1970
Carolina Power & Light Company	Robinson No. 2	665	700	PWR	1971
Dairyland Power Cooperative	La Crosse	46	46	BWR	1971
Northern States Power Company	Monticello No. 1	536	557	BWR	1971
Commonwealth Edison Company	Dresden No. 2	772	794	BWR	1971
Boston Edison Company	Pilgrim No. 1	670	670	BWR	1972
Commonwealth Edison Company	Quad Cities No. 1	768	789	BWR	1972
Commonwealth Edison Company	Quad Cities No. 2	769	789	BWR	1972
Florida Power & Light Company	Turkey Point No. 3	666	696	PWR	1972
Maine Yankee Atomic Power Company	Wiscasset	814	830	PWR	1972
Vermont Yankee Nuclear Power Corporation	Vernon	496	528	BWR	1972
Virginia Electric & Power Company	Surry No. 1	775	775	PWR	1972
Commonwealth Edison Company	Dresden No. 3	773	794	BWR	1973
Consumers Power Company	Palisades No. 1	635	740	PWR	1973
Duke Power Company	Oconee No. 1	860	860	PWR	1973
Duke Power Company	Oconee No. 2	860	860	PWR	1973
Florida Power and Light Company	Turkey Point No. 4	666	696	PWR	1973
Northern States Power Company	Prairie Island No. 1	503	523	PWR	1973
Omaha Public Power District	Fort Calhoun No. 1	439	457	PWR	1973
Tennessee Valley Authority	Browns Ferry No. 1	1,067	1,067	BWR	1973
Virginia Electric and Power Company	Surry No. 2	775	775	PWR	1973
Wisconsin Electric Power Company	Point Beach No. 2	495	495	PWR	1973
Arkansas Power and Light Company	Arkansas Nuclear No. 1	836	836	PWR	1974
Commonwealth Edison Company	Zion No. 1	1,040	1,040	PWR	1974

NUCLEAR ELECTRIC POWER (Cont.)

Name of System or Sponsor	Name or Location	Capability-MW Summer	Capability-MW Winter	Type of Reactor	Placed in Commercial Operation
Commonwealth Edison Company	Zion No. 2	1,040	1,040	PWR	1974
Consolidated Edison Company of NY, Inc	Indian Point No. 2	849	864	PWR	1974
Duke Power Company	Oconee No. 3	860	860	PWR	1974
Iowa Electric Light and Power Company	Arnold No. 1	480	510	BWR	1974
Metropolitan Edison Company	Three Mile Island No. 1	776	800	PWR	1974
Nebraska Public Power District	Cooper Nuclear No. 1	778	778	BWR	1974
Northern States Power Company	Prairie Island No. 2	500	520	PWR	1974
Philadelphia Electric Company	Peach Bottom No. 2	1,051	1,055	BWR	1974
Philadelphia Electric Company	Peach Bottom No. 3	1,035	1,035	BWR	1974
Wisconsin Public Service Corporation	Kewaunee No. 1	525	517	PWR	1974
Baltimore Gas & Electric Company	Calvert Cliffs No. 1	810	820	PWR	1975
Carolina Power & Light Company	Brunswick No. 2	790	790	BWR	1975
Georgia Power Company	Hatch No. 1	771	771	BWR	1975
Indiana & Michigan Electric Company	Cook No. 1	1,050	1,050	PWR	1975
Power Authority of the State of New York	Fitzpatrick No. 1	821	821	BWR	1975
Sacramento Utility District	Rancho Seco No. 1	875	903	PWR	1975
Tennessee Valley Authority	Browns Ferry No. 2	1,067	1,067	BWR	1975
Duquesne Light Company	Beaver Valley No. 1	800	800	PWR	1976
Florida Power and Light Company	St. Lucie No. 1	777	795	PWR	1976
Northeast Utilities	Milistone Point No. 2	864	864	PWR	1976
Portland General Electric Company	Trojan	1,080	1,080	PWR	1976
Power Authority of the State of New York	Indian Point No. 3	965	965	PWR	1976
Alabama Power Company	Farley No. 1	807	807	PWR	1977
Baltimore Gas and Electric Company	Calvert Cliffs No. 2	825	860	PWR	1977
Carolina Power and Light Company	Brunswick No. 1	790	790	BWR	1977
Florida Power Corporation	Crystal River No. 3	782	807	PWR	1977
Public Service Electric and Gas Company	Salem Nuclear No. 1	1,079	1,100	PWR	1977
Tennessee Valley Authority	Browns Ferry No. 3	1,067	1,067	BWR	1977
Toledo Edison Company	Davis-Besse No. 1	906	906	PWR	1977
Indiana & Michigan Electric Company	Cook No. 2	1,100	1,100	PWR	1978
Virginia Electric & Power Company	North Anna No. 1	898	907	PWR	1978
Georgia Power Company	Hatch No. 2	771	771	BWR	1979
Public Service Company of Colorado	Fort St. Vrain No. 1	200	200	HTGR	1979
Arkansas Power & Light Company	Arkansas Nuclear No. 2	858	858	PWR	1980
Virginia Electric & Power Company	North Anna No. 2	870	870	PWR	1980
Alabama Power Company	Farley No. 2	812	812	PWR	1981
Duke Power Company	McGuire No. 1	1,180	1,180	PWR	1981
Public Service Electric & Gas Co.	Salem Nuclear No. 2	1,106	1,120	PWR	1981
Tennessee Valley Authority	Sequoyah No. 1	1,128	1,128	PWR	1981
Tennessee Valley Authority	Sequoyah No. 2	1,148	1,148	PWR	1982
TOTAL		56,055	56,759		

BWR = Boiling Water Reactor
GMWC = Graphite Moderated, Water Cooled Reactor
HTGR = High Temperature, Gas Cooled Reactor
LWBR = Light Water Breeder Reactor
PWR = Pressurized Water Reactor

PART II/MANUFACTURE OF HEAVY ELECTRIC POWER EQUIPMENT

Data in this section of the report relate to the manufacture in the United States of heavy electric power equipment for U.S. electric power systems, U.S. industrials and for export to customers outside the United States. Information is also included on actual and scheduled imports of such equipment by U.S. electric power systems.

Orders placed with domestic and foreign manufacturers during 1982 for this type of equipment by U.S. electric power systems are shown in the accompanying Table XI, together with corresponding information for the previous four years.

Detailed data concerning 1982 orders, shipments, scheduled shipments, and total production backlogs as of January 1, 1983, are shown on the following pages, as well as data on imports of equipment by U.S. electric power systems.

Appendix II gives statistical data by quarters for the past three years regarding heavy electric power equipment shipments, orders, and production backlogs at the end of each quarter, but only for domestic manufacturers of such equipment.

Table XI CAPACITY OF HEAVY ELECTRIC POWER EQUIPMENT PLACED ON ORDER WITH DOMESTIC AND FOREIGN MANUFACTURERS BY U.S. ELECTRIC POWER SYSTEMS

	1978	1979	1980	1981	1982
Electric Generating Units (4,000 Kw and Larger)					
Steam Turbine-Generators, Kw					
Conventional	18,332,703*	4,478,910	2,846,000*	7,704,494*	93,500
Nuclear	—	—	—	—	—
Combustion Turbine-Generators, Kw	673,050	428,900	551,190	524,580	35,790
Generators for Hydraulic Turbines, Kw	1,099,100*	969,280*	15,010	209,340*	279,326*
TOTAL	20,104,853*	5,877,090*	3,412,200*	8,438,414*	408,616*
Steam Generators, 1,000 Lb Steam Per Hour	115,914	17,697	34,363	51,880	1,000
Nuclear Power Reactors (50,000 Kwe and Larger)	2,300,000	—	—	—	—
Hydraulic Turbine, Hp	4,042,280	16,000	17,600*	40,000	—
Power Transformers, Mva**	133,563	132,317	123,037	91,093	78,003

*Includes equipment on order with foreign manufacturers.

**Includes U.S. Industrials.

Table XII MANUFACTURE OF ELECTRIC GENERATING EQUIPMENT—STEAM AND HYDRAULIC UNITS*—4,000 Kw and Larger**

	Shipped	Scheduled as of January 1, 1983						Total Scheduled for Shipment as of 1-1-83	New Orders Booked 1982
	1982	1983	1984	1985	1986	1987	1988 and Later		
U.S. Electric Power Systems									
Units	26	18	15	14	11	17	41	116	3
Kw	7,347,039	6,317,187	6,452,620	9,040,602	6,533,249	9,093,479	29,437,165	66,874,302	101,600
U.S. Industrials									
Units	15	9	5	2	—	—	—	16	5
Kw	258,190	295,300	198,870	78,800	—	—	—	572,970	250,670
Outside U.S.									
Units	10	18	7	—	—	2	3	30	4
Kw	2,361,675	7,364,249	3,188,574	—	—	1,412,992	2,274,000	14,239,815	104,000
Total									
Units	51	45	27	16	11	19	44	162	12
Kw	9,966,904	13,976,736	9,840,064	9,119,402	6,533,249	10,506,471	31,711,165	81,687,087	456,270

*Does not include combustion turbine-generators, but does include steam turbine-generators for nuclear power plants.
**Manufacturers' ratings.

Table XIII MANUFACTURE OF STEAM TURBINE-GENERATORS—4,000 Kw and Larger*

	Shipped	Scheduled as of January 1, 1983						Total Scheduled for Shipment as of 1-1-83	New Orders Booked 1982
	1982	1983	1984	1985	1986	1987	1988 and Later		
U.S. Electric Power Systems									
Units	13	13	10	14	11	17	41	106	2
Kw	6,495,689	6,042,187	6,253,670	9,040,602	6,533,249	9,093,479	29,437,165	66,400,352	93,500
U.S. Industrials									
Units	15	9	5	2	—	—	—	16	5
Kw	258,190	295,300	198,870	78,800	—	—	—	572,970	250,670
Outside U.S.									
Units	10	18	7	—	—	2	3	30	4
Kw	2,361,675	7,364,249	3,188,574	—	—	1,412,992	2,274,000	14,239,815	104,000
Total									
Units	38	40	22	16	11	19	44	152	11
Kw	9,115,554	13,701,736	9,641,114	9,119,402	6,533,249	10,506,471	31,711,165	81,213,137	448,170

*Manufacturers' ratings.

Table XIII-A MANUFACTURE OF CONVENTIONAL STEAM TURBINE-GENERATORS—4,000 Kw and Larger* (Included in Table XIII)

	Shipped	Scheduled as of January 1, 1983						Total Scheduled for Shipment as of 1-1-83	New Orders Booked 1982
	1982	1983	1984	1985	1986	1987	1988 and Later		
U.S. Electric Power Systems									
Units	11	13	10	13	11	16	34	97	2
Kw	3,981,654	6,042,187	6,253,670	7,880,602	6,533,249	8,676,976	21,496,948	56,883,632	93,500
U.S. Industrials									
Units	15	9	5	2	—	—	—	16	5
Kw	258,190	295,300	198,870	78,800	—	—	—	572,970	250,670
Outside U.S.									
Units	9	15	7	—	—	—	2	24	4
Kw	1,554,000	4,562,574	3,188,574	—	—	—	1,294,000	9,045,148	104,000
Total									
Units	35	37	22	15	11	16	36	137	11
Kw	5,793,844	10,900,061	9,641,114	7,959,402	6,533,249	8,676,976	22,790,948	66,501,750	448,170
Orders to Foreign Manufacturers									
Units	3	1	2	2	—	—	1	6	—
Kw	466,100	600,000	637,000	850,000	—	—	160,000	2,247,000	—

*Manufacturers' ratings.

Table XIII-B MANUFACTURE OF NUCLEAR STEAM TURBINE-GENERATORS—50,000 Kw and Larger* (Included in Table XIII)

	Shipped	Scheduled as of January 1, 1983						Total Scheduled for Shipment as of 1-1-83	New Orders Booked 1982
	1982	1983	1984	1985	1986	1987	1988 and Later		
U.S. Electric Power Systems									
Units	2	—	—	1	—	1	7	9	—
Kw	2,514,035	—	—	1,160,000	—	416,503	7,940,217	9,516,720	—
U.S. Industrials									
Units	—	—	—	—	—	—	—	—	—
Kw	—	—	—	—	—	—	—	—	—
Outside U.S.									
Units	1	3	—	—	—	2	1	6	—
Kw	807,675	2,801,675	—	—	—	1,412,992	980,000	5,194,667	—
Total									
Units	3	3	—	1	—	3	8	15	—
Kw	3,321,710	2,801,675	—	1,160,000	—	1,829,495	8,920,217	14,711,387	—
Orders to Foreign Manufacturers									
Units	—	—	—	—	—	—	—	—	—
Kw	—	—	—	—	—	—	—	—	—

*Manufacturers' ratings.

Table XIV MANUFACTURE OF GENERATORS FOR HYDRAULIC TURBINES*—4,000 Kw and Larger**

	Shipped	Scheduled as of January 1, 1983						Total Scheduled for Shipment as of 1-1-83	New Orders Booked 1982
	1982	1983	1984	1985	1986	1987	1988 and Later		
U.S. Electric Power Systems									
Units	13	5	5	—	—	—	—	10	1
Kw	851,350	275,000	198,950	—	—	—	—	473,950	8,100
U.S. Industrials									
Units	—	—	—	—	—	—	—	—	—
Kw	—	—	—	—	—	—	—	—	—
Outside U.S.									
Units	—	—	—	—	—	—	—	—	—
Kw	—	—	—	—	—	—	—	—	—
Total									
Units	13	5	5	—	—	—	—	10	1
Kw	851,350	275,000	198,950	—	—	—	—	473,950	8,100
Orders to Foreign Manufacturers									
Units	4	5	3	4	4	1	—	17	8
Kw	146,000	112,476	101,250	632,700	1,127,700	281,000	—	2,255,826	271,226

*Includes generators for pumped-storage plants
**Manufacturers' ratings.

Table XV MANUFACTURE OF CONVENTIONAL STEAM GENERATORS—450 Psi Pressure and Higher

	Shipped	Scheduled as of January 1, 1983						Total Scheduled for Shipment as of 1-1-83	New Orders Booked 1982
	1982	1983	1984	1985	1986	1987	1988 and Later		
U.S. Electric Power Systems									
Units	17	10	10	13	6	3	6	48	2
M Lb/Hr	62,397	45,888	46,361	59,739	32,185	20,025	27,066	231,264	1,000
U.S. Industrials									
Units	15	4	—	—	—	—	—	4	2
M Lb/Hr	4,973	1,649	—	—	—	—	—	1,649	590
Outside U.S.									
Units	10	5	1	2	1	—	—	9	—
M Lb/Hr	15,219	17,121	4,579	8,327	3,748	—	—	33,775	—
Total									
Units	42	19	11	15	7	3	6	61	4
M Lb/Hr	82,589	64,658	50,940	68,066	35,933	20,025	27,066	266,638	1,590

Table XVI MANUFACTURE OF HYDRAULIC TURBINES*—5,000 Horsepower and Larger

	Shipped	Scheduled as of January 1, 1983						Total Scheduled for Shipment as of 1-1-83	New Orders Booked 1982
	1982	1983	1984	1985	1986	1987	1988 and Later		
U.S. Electric Power Systems									
Units	—	8	7	3	—	—	4	22	—
Hp	—	1,700,420	1,743,060	156,000	—	—	1,380,000	4,979,480	—
U.S. Industrials									
Units	—	—	—	—	—	—	—	—	—
Hp	—	—	—	—	—	—	—	—	—
Outside U.S.									
Units	1	4	2	2	—	—	—	8	—
Hp	24,140	1,280,000	183,600	183,600	—	—	—	1,647,200	—
Total									
Units	1	12	9	5	—	—	4	30	—
Hp	24,140	2,980,420	1,926,660	339,600	—	—	1,380,000	6,626,680	—
Orders to Foreign Manufacturers									
Units	—	—	—	—	—	—	—	—	—
Hp	—	—	—	—	—	—	—	—	—

*Includes hydraulic turbines for pumped-storage plants.
**Manufacturers' ratings.

Table XVII MANUFACTURE OF POWER TRANSFORMERS—501 Kva and Larger

		Shipped	Scheduled as of January 1, 1983						Total Scheduled for Shipment as of 1-1-83	New Orders Booked 1982
		1982	1983	1984	1985	1986	1987	1988 and Later		
501 to 10,000 Kva										
U.S. Electric Power Systems and U.S. Industrials	Units	4,753	2,297	62	25	10	7	28	2,429	4,204
	Mva	13,161	5,953	193	58	112	70	274	6,660	10,871
Outside U.S.	Units	490	221	—	—	—	—	2	223	351
	Mva	1,231	600	—	—	—	—	20	620	991
TOTAL	Units	5,243	2,518	62	25	10	7	30	2,652	4,555
	Mva	14,392	6,553	193	58	112	70	294	7,280	11,862
10,001 to 30,000 Kva										
U.S. Electric Power Systems and U.S. Industrials	Units	796	289	64	37	5	—	7	402	635
	Mva	21,154	7,201	2,203	1,445	185	—	192	11,226	16,015
Outside U.S.	Units	35	6	—	—	—	—	—	6	12
	Mva	795	309	—	—	—	—	—	309	486
TOTAL	Units	831	295	64	37	5	—	7	408	647
	Mva	21,949	7,510	2,203	1,445	185	—	192	11,535	16,501
30,001 to 100,000 Kva										
U.S. Electric Power Systems and U.S. Industrials	Units	235	113	43	41	9	8	14	228	205
	Mva	15,048	7,021	3,066	2,808	713	518	1,085	15,211	12,804
Outside U.S.	Units	21	4	—	2	—	—	—	6	16
	Mva	1,001	297	—	160	—	—	—	457	1,498
TOTAL	Units	256	117	43	43	9	8	14	234	221
	Mva	16,049	7,318	3,066	2,968	713	518	1,085	15,668	14,302
100,001 Kva and Larger										
U.S. Electric Power Systems and U.S. Industrials	Units	197	127	51	33	21	13	26	271	114
	Mva	64,381	41,892	17,930	14,909	8,201	6,357	9,147	98,436	38,313
Outside U.S.	Units	7	8	1	2	—	—	—	11	3
	Mva	3,083	3,464	217	434	—	—	—	4,115	749
TOTAL	Units	204	135	52	35	21	13	26	282	117
	Mva	67,464	45,356	18,147	15,343	8,201	6,357	9,147	102,551	39,062
Total (50 1 Kva and Larger)										
U.S. Electric Power Systems and U.S. Industrials	Units	5,981	2,826	220	136	45	28	75	3,330	5,158
	Mva	113,744	62,067	23,392	19,220	9,211	6,945	10,698	131,533	78,003
Outside U.S.	Units	553	239	1	4	—	—	2	246	382
	Mva	6,110	4,670	217	594	—	—	20	5,501	3,724
TOTAL	Units	6,534	3,065	221	140	45	28	77	3,576	5,540
	Mva	119,854	66,737	23,609	19,814	9,211	6,945	10,718	137,034	81,727

Table XVIII MANUFACTURE OF COMBUSTION TURBINE-GENERATORS—4,000 Kw and Larger*

	Shipped	Scheduled as of January 1, 1983						Total Scheduled for Shipment as of 1-1-83	New Orders Booked 1982
	1982	1983	1984	1985	1986	1987	1988 and Later		
U.S. Electric Power Systems									
Units	1	2				1	4	9	1
Kw	35,790	192,880				224,500	1,149,000	1,674,380	35,790
U.S. Industrials									
Units	7	2						2	1
Kw	613,140	133,140						133,140	36,700
Outside U.S.									
Units	13								3
Kw	941,220								109,380
Total									
Units	21	4				1	4	11	5
Kw	1,590,150	326,020				224,500	1,149,000	1,807,520	181,870

*Manufacturers' ratings.

Table XIX MANUFACTURE OF NUCLEAR REACTORS—50,000 Kwe and Larger*

	Completed	Scheduled as of January 1, 1983						Total Scheduled for Completion as of 1-1-83	New Orders Booked 1982
	1982	1983	1984	1985	1986	1987	1988 and Later		
U.S. Electric Power Systems									
Units	1	13	13	11	11	7	26	81	
Kw	1,148,000	14,095,000	13,274,000	12,390,000	12,388,000	8,193,000	30,302,000	90,642,000	
Outside U.S.									
Units	1	6	9	4	4	4	4	31	
Kw	951,000	4,838,000	7,487,000	3,715,000	3,456,000	3,759,000	4,040,000	27,295,000	
Total									
Units	2	19	22	15	15	11	30	112	
Kw	2,099,000	18,933,000	20,761,000	16,105,000	15,844,000	11,952,000	34,342,000	117,937,000	

*Manufacturers' ratings.

APPENDIX I/1982 ADDITIONS TO ELECTRIC GENERATING CAPACITY
U.S. Electric Power Systems—Units 4,000 Kw and Larger

SYMBOLS:

Investor-Owned I
Federal ..... F
Municipal ..... M
Cooperative C
State & Local ..... SL
Thermal
- Conventional steam turbine-generator ..... T
- Nuclear steam turbine-generator ..... N
- Combustion turbine-generator ..... G
- Diesel engine-generator ..... D

Hydraulic
- Hydraulic turbine-generator ..... H

Pumped-Storage
- Pumped-storage turbine-generator ..... S
- Reversible pumped-storage turbine-generator ..... R

Combined-Cycle
- Combustion turbine-generator for combined-cycle operation ..... GC
- Conventional steam turbine-generator for combined-cycle operation ..... TC

+ Denotes multiple ownership of the unit. In such cases, the name of the participating power system in whose service area the installation will be located is shown. In case the location does not fall within the service area of any of the participants, the name of the power system shown is the first in alphabetical order among the major participants.

NOTES: Kilowatts shown for individual generating units represent, in most cases, the net operating capability expected by the power systems; in other cases they represent the manufacturer's nameplate rating of the unit.

It is the convention in listing combined-cycle projects that the first line item is the combustion turbine-generator and the second line item is the steam turbine-generator. Combined-cycle operation is indicated by the symbols GC and TC in a brace:

GC }
TC }

NPCC

SYSTEM	UNIT	OWNER-SHIP	TYPE	FOSSIL FUELS	NET EXPECTED CAPABILITY
CENTRAL MAINE POWER CO	BRUNSWICK TOPSHAM NO 1	I	H		13,200
MASSACHUSETTS MUNICIPAL WHOLESALE ELEC CORP	STONY BROOK GTA	M	GC		91,000
MASSACHUSETTS MUNICIPAL WHOLESALE ELEC CORP	STONY BROOK GTB	M	GC		91,000

ECAR

AMERICAN ELECTRIC POWER CO	RACINE DAM B	I	H		20,000
DAYTON POWER & LIGHT CO	KILLEN CT	I	G		26,100
DAYTON POWER & LIGHT CO	KILLEN NO 2	I	T	Coal	520,000
HOOSIER ENERGY DIVISION	MEROM NO 1	C	T	Coal	500,000
LOUISVILLE GAS & ELECTRIC CO	MILL CREEK NO 4	I	T	Coal	495,000
MICHIGAN SOUTH CENTRAL POWER AGENCY	PROJECT NO 1	SL	T	Coal	50,000
+PUBLIC SERVICE CO OF INDIANA	GIBSON NO 5	I	T	Coal	650,000
STURGIS MICHIGAN	MUNICIPAL LIGHT PLANT	M	D		6,000

SERC

FLORIDA POWER CORPORATION	CRYSTAL RIVER NO 4	I	T	Coal	670,000
GEORGIA POWER COMPANY	SCHERER NO 1	I	T	Coal	808,000
KISSIMMEE FLORIDA	HANSEL NO 1	M	GC		21,000
+LAKELAND FLORIDA	McINTOSH NO 3	M	T	Coal/Oil	334,000
ST CLOUD FLORIDA	MUNICIPAL LIGHT PLANT	M	D		6,000
TENNESSEE VALLEY AUTHORITY	SEQUOYAH NO 2	F	N		1,148,000

MAIN

SYSTEM	UNIT	OWNER-SHIP	TYPE	FOSSIL FUEL	NET EXPECTED CAPABILITY
CENTRAL ILLINOIS PUBLIC SERVICE CO	NEWTON NO 2	I	T	Coal	562,000

SPP

ASSOCIATED ELECTRIC COOP	THOMAS HILL NO 3	C	T	Coal	630,000
BURLINGTON KANSAS	MUNICIPAL LIGHT PLANT	M	D		4,800
CENTRAL LOUISIANA ELECTRIC CO	RODEMACHER NO 2	I	T	Coal/Oil	530,000
GULF STATES UTILITIES CO	NELSON NO 6	I	T	Coal	540,000
GULF STATES UTILITIES CO	NELSON NO 7	I	GC		90,000
SOUTHWESTERN ELECTRIC POWER CO	WELSH NO 3	I	T	Coal	528,000
SOUTHWESTERN PUBLIC SERVICE CO	TOLK NO 1	I	T	Coal/Oil/Gas	508,000
U.S. ARMY CORPS OF ENGINEERS	TRUMAN NO 4	F	R		26,666
U.S. ARMY CORPS OF ENGINEERS	TRUMAN NO 5	F	R		26,667
WESTERN FARMERS COOP	HUGO NO 1	C	T	Coal	376,000

ERCOT

+BRAZOS ELECTRIC POWER COOP	SAN MIGUEL NO 1	C	T	Coal	400,000
HOUSTON LIGHTING & POWER CO	PARISH NO 8	I	T	Coal	540,000

MAPP

AMES IOWA	AMES NO 8	M	T	Coal/Gas	60,000
GRAND ISLAND NEBRASKA	PLATT NO 1	M	T	Coal	100,000
NEBRASKA PUBLIC POWER DISTRICT	GENTLEMAN NO 2	SL	T	Coal	600,000

WSCC

+BASIN ELECTRIC POWER COOP	LARAMIE RIVER NO 3	C	T	Coal	550,000
CALIFORNIA DEPARTMENT OF WATER RESOURCES	W E WARNE NO 1	SL	H		38,000
METROPOLITAN WATER DISTRICT	SUPULVEDA CANYON NO 1	M	H		8,600
METROPOLITAN WATER DISTRICT	VENICE NO 1	M	H		10,100
NEVADA POWER CO	CLARK NO 8	I	G		70,000
+NEVADA POWER CO	REID GARDNER NO 4	I	T	Coal	250,000
PACIFIC GAS & ELECTRIC CO	GEYSERS NO 17	I	T	Geothermal	110,000
PORTLAND OREGON	BULL RUN NO 1	M	H		27,000
PORTLAND OREGON	BULL RUN NO 2	M	H		11,000
PUBLIC SERVICE CO OF NEW MEXICO	SAN JUAN NO 4	I	T	Coal	472,000
U.S. ARMY CORPS OF ENGINEERS	BONNEVILLE DAM NO 11	F	H		76,000
U.S. ARMY CORPS OF ENGINEERS	BONNEVILLE DAM NO 12	F	H		76,000
U.S. ARMY CORPS OF ENGINEERS	BONNEVILLE DAM NO 13	F	H		76,000
U.S. ARMY CORPS OF ENGINEERS	BONNEVILLE DAM NO 14	F	H		76,000
U.S. ARMY CORPS OF ENGINEERS	BONNEVILLE DAM NO 15	F	H		76,000
U.S. ARMY CORPS OF ENGINEERS	BONNEVILLE DAM NO 16	F	H		76,000
WARM SPRINGS TRIBES	PELTON DAM OREGON	SL	H		21,000

FIFTY GENERATING UNITS WERE ADDED IN 1982 WITH TOTAL NET EXPECTED CAPABILITY OF 12,995,133 KW

APPENDIX II/STATISTICS CONCERNING THE MANUFACTURE OF HEAVY ELECTRIC POWER EQUIPMENT

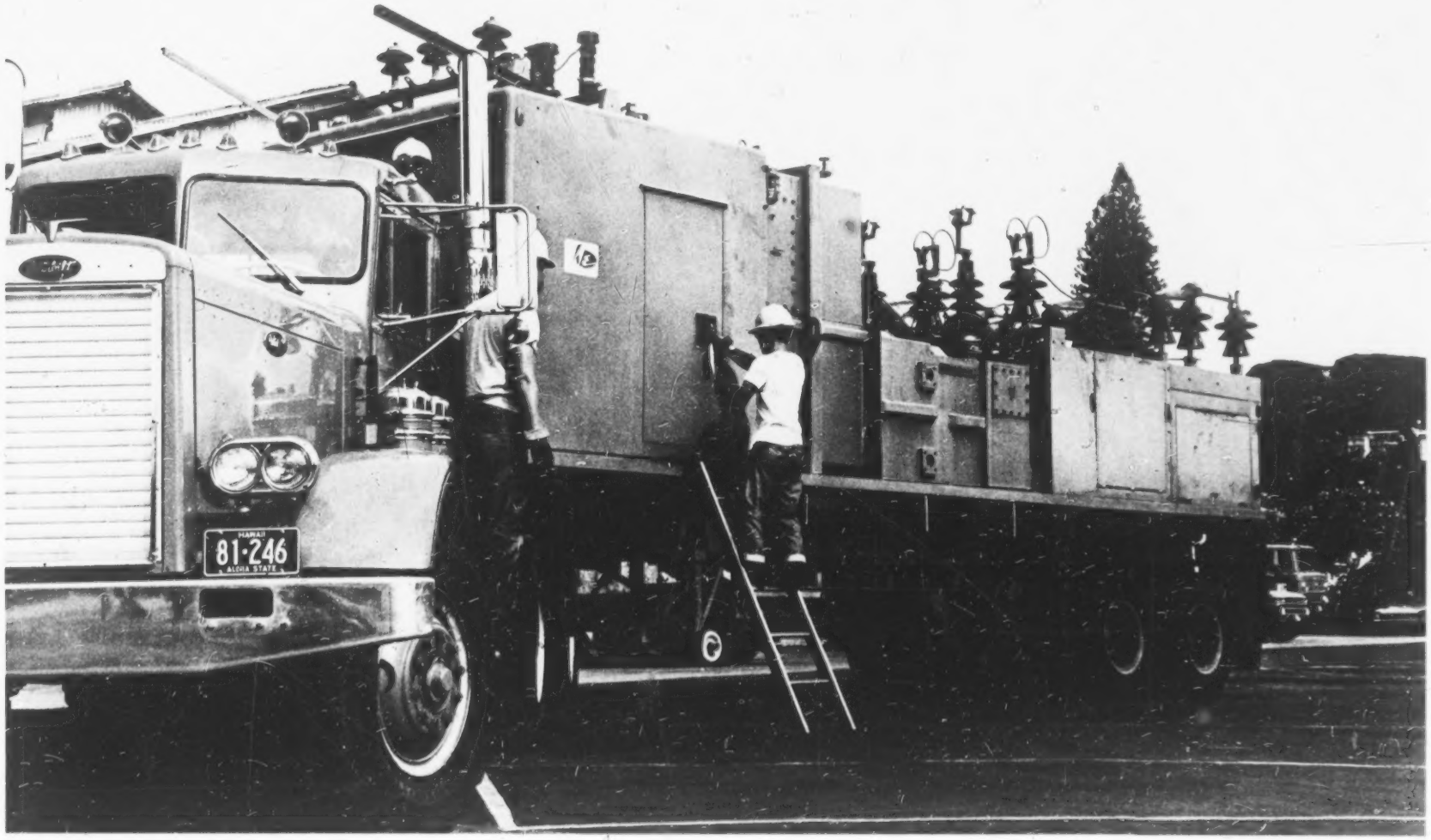


Table A ELECTRIC GENERATING EQUIPMENT, STEAM AND HYDRAULIC UNITS—4,000 Kw and Larger

Period		Shipped During Period To: U.S. Electric Power Systems	Shipped During Period To: U.S. Industrials	Shipped During Period To: Outside U.S.	Shipped During Period To: Total Shipments	Ordered During Period By*: U.S. Electric Power Systems	Ordered During Period By*: U.S. Industrials	Ordered During Period By*: Outside U.S.	Ordered During Period By*: Total New Orders	Scheduled for Shipment at End of Period To: U.S. Electric Power Systems	Scheduled for Shipment at End of Period To: U.S. Industrials	Scheduled for Shipment at End of Period To: Outside U.S.	Scheduled for Shipment at End of Period To: Total
1980													
1st Quarter	Units	3	3	5	11	2	6	—	8	224	18	33	275
	Kw	2,236,316	30,900	1,993,836	4,261,052	1,065,000	137,850	—	1,202,850	134,019,088	428,350	11,857,494	146,304,932
2nd Quarter	Units	5	2	5	12	—	5	2	7	219	21	30	270
	Kw	3,895,012	20,000	1,197,339	5,112,351	—	149,317	572,000	721,317	130,124,076	557,667	11,232,155	141,913,898
3rd Quarter	Units	12	2	7	21	—	4	1	5	206	23	24	253
	Kw	3,524,976	55,000	1,012,000	4,591,976	—	137,000	135,000	272,000	125,838,750	639,667	10,355,155	136,833,572
4th Quarter	Units	13	3	6	22	4	4	7	15	192	22	32	246
	Kw	5,144,729	89,000	1,922,754	7,156,483	1,296,010	44,000	2,037,500	3,377,510	115,297,888	594,667	13,830,673	129,723,228
Total—1980	Units	33	10	23	66	6	19	10	35				
	Kw	14,801,033	194,900	6,125,929	21,121,862	2,361,010	468,167	2,744,500	5,573,677				
1981													
1st Quarter	Units	7	1	3	11	10	—	2	12	180	21	31	232
	Kw	2,977,725	10,000	219,000	3,206,725	4,597,240	—	1,412,992	6,010,232	98,273,591	584,667	15,024,665	113,882,923
2nd Quarter	Units	9	6	2	17	3	11	5	19	169	26	32	227
	Kw	2,607,689	123,750	313,000	3,044,439	1,710,394	170,340	240,000	2,120,734	94,655,984	631,257	13,851,665	109,138,906
3rd Quarter	Units	10	5	2	17	3	3	4	10	164	23	36	223
	Kw	2,593,236	151,045	829,675	3,573,956	440,000	92,650	1,400,000	1,932,650	94,498,558	547,862	15,521,990	110,568,410
4th Quarter	Units	9	3	5	17	1	2	3	6	157	24	36	217
	Kw	4,583,664	92,000	984,500	5,660,164	47,000	27,500	960,000	1,034,500	87,721,778	550,362	16,197,490	104,469,630
Total—1981	Units	35	15	12	62	17	16	14	47				
	Kw	12,762,314	376,795	2,346,175	15,485,284	6,794,634	290,490	4,012,992	11,098,116				
1982													
1st Quarter	Units	2	3	—	5	1	2	2	5	147	22	37	206
	Kw	830,368	68,840	—	899,208	23,500	153,000	19,000	195,500	85,740,102	575,522	15,666,490	101,982,114
2nd Quarter	Units	6	4	5	15	1	1	2	4	145	19	35	199
	Kw	2,367,000	56,000	1,317,000	3,740,000	70,000	6,700	85,000	161,700	83,688,405	526,222	15,284,490	99,499,117
3rd Quarter	Units	12	5	2	19	—	1	—	1	122	12	33	167
	Kw	3,388,411	77,500	75,000	3,540,911	—	22,170	—	22,170	67,963,396	366,892	15,209,490	83,539,778
4th Quarter	Units	6	3	3	12	1	1	—	2	116	16	30	162
	Kw	761,260	55,850	969,675	1,786,785	8,100	68,800	—	76,900	66,874,302	572,970	14,239,815	81,687,087
Total—1982	Units	26	15	10	51	3	5	4	12				
	Kw	7,347,039	258,190	2,361,675	9,966,904	101,600	250,670	104,000	456,270				

*Data in these tables concerning the number and aggregate capacity of units ordered during each quarter of a calendar year have been adjusted to account for changes in ratings, for cancellations and any other changes that occurred during that calendar year, but no adjustments are made for changes occurring after the close of the year.

Table B CONVENTIONAL STEAM TURBINE-GENERATORS—4,000 Kw and Larger

Period		Shipped During Period To				Ordered During Period By*				Scheduled for Shipment at End of Period To			
		U.S. Electric Power Systems	U.S. Industrials	Outside U.S.	Total Shipments	U.S. Electric Power Systems	U.S. Industrials	Outside U.S.	Total New Orders	U.S. Electric Power Systems	U.S. Industrials	Outside U.S.	Total
1980													
1st Quarter	Units	2	3	3	5	2	6	—	8	134	18	22	174
	Kw	1,061,316	30,900	67,470	1,159,686	1,065,000	137,850	—	1,202,850	72,798,664	428,350	4,752,715	77,979,729
2nd Quarter	Units	3	2	5	10	—	5	2	7	131	21	19	171
	Kw	1,360,588	20,000	1,197,339	2,577,927	—	149,317	572,000	721,317	71,438,076	557,667	4,127,376	76,123,119
3rd Quarter	Units	8	2	5	15	—	4	1	5	123	23	15	161
	Kw	3,028,866	55,000	634,000	3,717,866	—	137,000	135,000	272,000	68,817,104	639,667	3,628,376	73,085,147
4th Quarter	Units	8	3	4	15	3	4	7	14	114	22	25	161
	Kw	4,298,619	89,000	782,000	5,169,619	1,281,000	44,000	2,037,500	3,362,500	62,935,999	594,667	8,244,648	71,775,314
Total—1980	Units	21	10	17	48	5	19	10	34				
	Kw	9,749,389	194,900	2,680,809	12,625,098	2,346,000	468,167	2,744,500	5,558,667				
1981													
1st Quarter	Units	6	1	2	9	6	—	—	6	114	21	23	158
	Kw	2,627,725	10,000	30,000	2,667,725	4,487,000	—	—	4,487,000	64,112,539	584,667	8,214,648	72,911,854
2nd Quarter	Units	5	6	2	13	3	11	5	19	108	26	24	158
	Kw	1,813,189	123,750	313,000	2,249,939	1,710,394	170,340	240,000	2,120,734	61,973,335	631,257	7,041,648	69,646,240
3rd Quarter	Units	5	5	1	11	1	3	4	8	106	23	29	158
	Kw	2,465,536	151,045	22,000	2,638,581	415,000	92,650	1,400,000	1,907,650	61,918,609	547,862	9,519,648	71,986,119
4th Quarter	Units	3	3	5	11	1	2	3	6	107	24	29	160
	Kw	1,506,740	92,000	984,500	2,583,240	47,000	27,500	960,000	1,034,500	62,162,470	550,362	10,195,148	72,907,980
Total—1981	Units	19	15	10	44	11	16	12	39				
	Kw	8,413,190	376,795	1,349,500	10,139,485	6,659,394	290,490	2,600,000	9,549,884				
1982													
1st Quarter	Units	2	3	—	5	1	2	2	5	106	22	30	158
	Kw	830,368	68,840	—	899,208	23,500	153,000	19,000	195,500	61,302,102	575,522	9,664,148	71,541,772
2nd Quarter	Units	2	4	5	11	1	1	2	4	106	19	28	153
	Kw	642,000	56,000	1,317,000	2,015,000	70,000	6,700	85,000	161,700	60,923,822	526,222	9,282,148	70,732,192
3rd Quarter	Units	6	5	2	13	—	1	—	1	98	12	26	136
	Kw	1,849,286	77,500	75,000	2,001,786	—	22,170	—	22,170	57,829,596	366,892	9,207,148	67,403,636
4th Quarter	Units	1	3	2	6	—	1	—	1	97	16	24	137
	Kw	660,000	55,850	162,000	877,850	—	68,800	—	68,800	56,883,632	572,970	9,045,148	66,501,750
Total—1982	Units	11	15	9	35	2	5	4	11				
	Kw	3,981,654	258,190	1,554,000	5,793,844	93,500	250,670	104,000	448,170				

*Data in these tables concerning the number and aggregate capacity of units ordered during each quarter of a calendar year have been adjusted to account for changes in ratings, for cancellations and any other changes that occurred during that calendar year, but no adjustments are made for changes occurring after the close of the year.

Table C NUCLEAR STEAM TURBINE-GENERATORS—50,000 Kw and Larger

Period		Shipped During Period To			Ordered During Period By*			Scheduled for Shipment at End of Period To		
		U.S. Electric Power Systems	Outside U.S.	Total Shipments	U.S. Electric Power Systems	Outside U.S.	Total New Orders	U.S. Electric Power Systems	Outside U.S.	Total
1980										
1st Quarter	Units	1	2	3	—	—	—	46	7	53
	Kw	1,175,000	1,926,366	3,101,366	—	—	—	54,872,947	6,348,779	61,221,723
2nd Quarter	Units	2	—	2	—	—	—	44	7	51
	Kw	2,534,424	—	2,534,424	—	—	—	52,338,520	6,348,779	58,687,299
3rd Quarter	Units	—	—	—	—	—	—	43	7	50
	Kw	—	—	—	—	—	—	51,170,276	6,348,779	57,519,055
4th Quarter	Units	—	1	1	—	—	—	40	6	46
	Kw	—	951,754	951,754	—	—	—	47,325,659	5,397,025	52,722,684
Total—1980	Units	3	3	6	—	—	—			
	Kw	3,709,424	2,878,120	6,587,544	—	—	—			
1981										
1st Quarter	Units	—	—	—	—	2	2	25	8	33
	Kw	—	—	—	—	1,412,992	1,412,992	29,364,582	6,810,017	36,174,599
2nd Quarter	Units	—	—	—	—	—	—	24	8	32
	Kw	—	—	—	—	—	—	28,680,679	6,810,017	35,490,696
3rd Quarter	Units	—	1	1	—	—	—	24	7	31
	Kw	—	807,675	807,675	—	—	—	28,680,679	6,002,342	34,683,021
4th Quarter	Units	2	—	2	—	—	—	19	7	26
	Kw	2,519,424	—	2,519,424	—	—	—	22,137,538	6,002,342	28,139,880
Total—1981	Units	2	1	3	—	2	2			
	Kw	2,519,424	807,675	3,327,099	—	1,412,992	1,412,992			
1982										
1st Quarter	Units	—	—	—	—	—	—	20	7	27
	Kw	—	—	—	—	—	—	23,080,910	6,002,342	29,083,252
2nd Quarter	Units	1	—	1	—	—	—	19	7	26
	Kw	1,175,000	—	1,175,000	—	—	—	21,947,413	6,002,342	27,949,755
3rd Quarter	Units	1	—	1	—	—	—	9	7	16
	Kw	1,339,035	—	1,339,035	—	—	—	9,516,720	6,002,342	15,519,062
4th Quarter	Units	—	1	1	—	—	—	9	6	15
	Kw	—	807,675	897,675	—	—	—	9,516,720	5,194,667	14,711,387
Total—1982	Units	2	1	3	—	—	—			
	Kw	2,514,035	807,675	3,321,710	—	—	—			

*Data in these tables concerning the number and aggregate capacity of units ordered during each quarter of a calendar year have been adjusted to account for changes in ratings, for cancellations and any other changes that occurred during that calendar year, but no adjustments are made for changes occurring after the close of the year.

Table D GENERATORS FOR HYDRAULIC TURBINES—4,000 Kw and Larger

Period		Shipped During Period To				Ordered During Period By*				Scheduled for Shipment at End of Period To			
		U.S. Electric Power Systems	U.S. Industrials	Outside U.S.	Total Shipments	U.S. Electric Power Systems	U.S. Industrials	Outside U.S.	Total New Orders	U.S. Electric Power Systems	U.S. Industrials	Outside U.S.	Total
1980													
1st Quarter	Units	—	—	—	—	—	—	—	—	44	—	4	48
	Kw	—	—	—	—	—	—	—	—	6,347,480	—	756,000	7,103,480
2nd Quarter	Units	—	—	—	—	—	—	—	—	44	—	4	48
	Kw	—	—	—	—	—	—	—	—	6,347,480	—	756,000	7,103,480
3rd Quarter	Units	4	—	2	6	—	—	—	—	40	—	2	42
	Kw	496,110	—	378,000	874,110	—	—	—	—	5,851,370	—	378,000	6,229,370
4th Quarter	Units	5	—	1	6	1	—	—	1	38	—	1	39
	Kw	846,110	—	189,000	1,035,110	15,010	—	—	15,010	5,036,230	—	189,000	5,225,230
Total—1980	Units	9	—	3	12	1	—	—	1				
	Kw	1,342,220	—	567,000	1,909,220	15,010	—	—	15,010				
1981													
1st Quarter	Units	1	—	1	2	4	—	—	4	41	—	—	41
	Kw	350,000	—	189,000	539,000	110,240	—	—	110,240	4,796,470	—	—	4,796,470
2nd Quarter	Units	4	—	—	4	—	—	—	—	37	—	—	37
	Kw	794,500	—	—	794,500	—	—	—	—	4,001,970	—	—	4,001,970
3rd Quarter	Units	5	—	—	5	2	—	—	2	34	—	—	34
	Kw	127,700	—	—	127,700	25,000	—	—	25,000	3,899,270	—	—	3,899,270
4th Quarter	Units	4	—	—	4	—	—	—	—	31	—	—	31
	Kw	557,500	—	—	557,500	—	—	—	—	3,421,770	—	—	3,421,770
Total—1981	Units	14	—	1	15	6	—	—	6				
	Kw	1,829,700	—	189,000	2,018,700	135,240	—	—	135,240				
1982													
1st Quarter	Units	—	—	—	—	—	—	—	—	21	—	—	21
	Kw	—	—	—	—	—	—	—	—	1,357,090	—	—	1,357,090
2nd Quarter	Units	3	—	—	3	—	—	—	—	20	—	—	20
	Kw	550,000	—	—	550,000	—	—	—	—	817,170	—	—	817,170
3rd Quarter	Units	5	—	—	5	—	—	—	—	15	—	—	15
	Kw	200,090	—	—	200,090	—	—	—	—	617,080	—	—	617,080
4th Quarter	Units	5	—	—	5	1	—	—	1	10	—	—	10
	Kw	101,260	—	—	101,260	8,100	—	—	8,100	473,950	—	—	473,950
Total—1982	Units	13	—	—	13	1	—	—	1				
	Kw	851,350	—	—	851,350	8,100	—	—	8,100				

*Data in these tables concerning the number and aggregate capacity of units ordered during each quarter of a calendar year have been adjusted to account for changes in ratings, for cancellations and any other changes that occurred during that calendar year, but no adjustments are made for changes occurring after the close of the year.

Table E CONVENTIONAL STEAM GENERATORS—450 Psi Pressure and Higher

Period		Shipped During Period To				Ordered During Period By*				Scheduled for Shipment at End of Period To			
		U.S. Electric Power Systems	U.S. Industrials	Outside U.S.	Total Shipments	U.S. Electric Power Systems	U.S. Industrials	Outside U.S.	Total New Orders	U.S. Electric Power Systems	U.S. Industrials	Outside U.S.	Total
1980													
1st Quarter	Units	5	—	2	7	—	8	4	12	68	13	15	96
	Mlb/Hr	19,221	—	1,807	21,028	—	3,610	10,712	14,322	297,052	5,205	30,343	332,600
2nd Quarter	Units	6	3	4	13	3	6	2	11	65	11	11	87
	Mlb/Hr	26,190	1,235	6,198	33,623	10,188	3,035	7,496	20,719	281,060	4,105	24,145	309,310
3rd Quarter	Units	—	3	4	7	2	1	1	4	67	14	10	91
	Mlb/Hr	—	660	5,391	6,051	5,413	150	1,186	6,749	286,463	6,495	27,436	320,394
4th Quarter	Units	8	3	—	11	4	2	2	8	63	13	14	90
	Mlb/Hr	40,067	1,505	—	41,572	58,762	534	1,100	60,396	305,628	5,524	29,436	340,588
Total—1980	Units	19	9	10	38	9	17	9	35				
	Mlb/Hr	85,478	3,400	13,396	102,274	74,363	7,329	20,494	102,186				
1981													
1st Quarter	Units	4	4	—	8	1	3	—	4	60	12	15	87
	Mlb/Hr	10,753	1,955	—	12,708	3,800	950	—	4,750	258,675	4,519	45,472	308,666
2nd Quarter	Units	4	5	4	13	9	5	3	17	65	12	13	90
	Mlb/Hr	12,207	2,085	14,501	28,793	44,280	2,334	6,841	53,455	294,623	4,768	35,408	334,799
3rd Quarter	Units	4	1	1	6	1	11	6	18	61	22	18	101
	Mlb/Hr	13,536	800	2,400	16,736	3,800	3,073	6,737	13,610	280,342	7,041	39,745	327,128
4th Quarter	Units	—	3	2	5	—	—	—	—	64	19	19	102
	Mlb/Hr	—	684	4,488	5,172	—	—	—	—	296,442	6,357	48,994	351,793
Total—1981	Units	12	13	7	32	11	19	9	39				
	Mlb/Hr	36,496	5,524	21,389	63,409	51,880	6,357	13,578	71,815				
1982													
1st Quarter	Units	6	5	2	13	—	1	—	1	58	15	17	90
	Mlb/Hr	25,940	1,628	4,303	31,871	—	400	—	400	270,502	5,129	44,691	320,322
2nd Quarter	Units	6	5	5	16	2	—	—	2	54	10	12	76
	Mlb/Hr	18,282	1,615	2,805	22,702	1,000	—	—	1,000	253,220	3,514	41,886	298,620
3rd Quarter	Units	4	5	3	12	—	—	—	—	49	2	9	60
	Mlb/Hr	14,875	1,730	8,111	24,716	—	—	—	—	234,564	1,184	33,775	269,523
4th Quarter	Units	—	—	—	—	—	2	—	2	48	4	9	61
	Mlb/Hr	—	—	—	—	—	190	—	190	231,264	1,649	33,775	266,688
Total—1982	Units	17	15	10	42	2	2	—	4				
	Mlb/Hr	62,397	4,973	15,219	82,589	1,000	590	—	1,590				

*Data in these tables concerning the number and aggregate capacity of units ordered during each quarter of a calendar year have been adjusted to account for changes in ratings, for cancellations and any other changes that occurred during that calendar year, but no adjustments are made for changes occurring after the close of the year.

Table F HYDRAULIC TURBINES—5,000 Horsepower and Larger

Period		Shipped During Period To				Ordered During Period By*				Scheduled for Shipment at End of Period To			
		U.S. Electric Power Systems	U.S. Industrials	Outside U.S.	Total Shipments	U.S. Electric Power Systems	U.S. Industrials	Outside U.S.	Total New Orders	U.S. Electric Power Systems	U.S. Industrials	Outside U.S.	Total
1980													
1st Quarter	Units	—	—	—	—	—	—	—	—	29	2	4	35
	Hp	—	—	—	—	—	—	—	—	6,280,180	22,530	322,420	6,625,130
2nd Quarter	Units	1	—	1	2	—	—	—	—	29	2	4	35
	Hp	105,000	—	250,000	355,000	—	—	—	—	6,280,180	22,530	322,420	6,625,130
3rd Quarter	Units	3	—	—	3	—	—	4	4	25	2	7	34
	Hp	375,000	—	—	375,000	—	—	1,280,000	1,280,000	5,800,180	22,530	1,352,420	7,175,130
4th Quarter	Units	2	—	—	2	—	—	—	—	26	2	7	35
	Hp	270,000	—	—	270,000	—	—	—	—	5,562,480	22,530	1,352,420	6,937,430
Total—1980	Units	6	—	1	7	—	—	4	4				
	Hp	750,000	—	250,000	1,000,000	—	—	1,280,000	1,280,000				
1981													
1st Quarter	Units	2	2	—	4	—	—	—	—	24	—	7	31
	Hp	210,000	22,530	—	232,530	—	—	—	—	5,352,480	—	1,352,420	6,704,900
2nd Quarter	Units	4	—	—	4	—	—	4	4	20	—	11	31
	Hp	474,000	—	—	474,000	—	—	367,200	367,200	4,878,480	—	1,719,620	6,598,100
3rd Quarter	Units	2	—	—	2	—	—	—	—	18	—	11	29
	Hp	55,000	—	—	55,000	—	—	—	—	4,823,480	—	1,719,620	6,543,100
4th Quarter	Units	2	—	2	4	1	—	—	1	22	—	9	31
	Hp	144,000	—	48,280	192,280	40,000	—	—	40,000	4,979,480	—	1,671,340	6,650,820
Total—1981	Units	10	2	2	14	1	—	4	5				
	Hp	883,000	22,530	48,280	953,810	40,000	—	367,200	407,200				
1982													
1st Quarter	Units	—	—	—	—	—	—	—	—	22	—	9	31
	Hp	—	—	—	—	—	—	—	—	4,979,480	—	1,671,340	6,650,820
2nd Quarter	Units	—	—	—	—	—	—	—	—	22	—	9	31
	Hp	—	—	—	—	—	—	—	—	4,979,480	—	1,671,340	6,650,820
3rd Quarter	Units	—	—	1	1	—	—	—	—	22	—	8	30
	Hp	—	—	24,140	24,140	—	—	—	—	4,979,480	—	1,647,200	6,626,680
4th Quarter	Units	—	—	—	—	—	—	—	—	22	—	8	30
	Hp	—	—	—	—	—	—	—	—	4,979,480	—	1,647,200	6,626,680
Total—1982	Units	—	—	1	1	—	—	—	—				
	Hp	—	—	24,140	24,140	—	—	—	—				

*Data in these tables concerning the number and aggregate capacity of units ordered during each quarter of a calendar year have been adjusted to account for changes in ratings, for cancellations and any other changes that occurred during that calendar year, but no adjustments are made for changes occurring after the close of the year.

Table G POWER TRANSFORMERS—501 Kva and Larger

Period		Shipped During Period To			Ordered During Period By*			Scheduled for Shipment at End of Period To		
		U.S. Electric Power Systems and U.S. Industrials	Outside U.S.	Total Shipments	U.S. Electric Power Systems and U.S. Industrials	Outside U.S.	Total New Orders	U.S. Electric Power Systems and U.S. Industrials	Outside U.S.	Total
1980										
1st Quarter	Units	1,900	80	1,980	2,015	149	2,164	4,711	327	5,038
	Mva	37,567	2,676	40,243	40,325	9,146	49,471	256,259	15,682	271,941
2nd Quarter	Units	1,764	110	1,874	1,297	120	1,417	4,951	344	5,295
	Mva	36,353	3,016	39,369	31,444	456	31,900	258,527	14,179	272,706
3rd Quarter	Units	1,623	100	1,723	1,571	57	1,628	5,066	328	5,394
	Mva	31,733	2,193	33,926	30,107	1,389	31,496	253,259	12,676	265,935
4th Quarter	Units	1,672	129	1,801	1,444	118	1,562	4,648	296	4,944
	Mva	40,785	1,031	41,816	21,161	618	21,779	235,245	12,532	247,777
Total—1980	Units	6,959	419	7,378	6,327	444	6,771			
	Mva	146,438	8,916	155,354	123,037	11,609	134,646			
1981										
1st Quarter	Units	1,764	94	1,858	1,706	87	1,793	4,564	263	4,827
	Mva	30,765	845	31,610	28,943	773	29,716	233,959	12,091	246,050
2nd Quarter	Units	1,641	117	1,758	1,436	103	1,539	4,305	273	4,578
	Mva	25,999	1,540	27,539	23,534	1,104	24,638	228,986	11,510	240,496
3rd Quarter	Units	1,529	94	1,623	1,469	159	1,628	4,054	333	4,387
	Mva	26,044	6,151	32,195	17,968	1,243	19,211	196,828	6,557	203,385
4th Quarter	Units	1,441	82	1,523	1,467	164	1,631	4,184	397	4,581
	Mva	32,029	2,521	34,550	20,648	4,011	24,659	174,021	8,012	182,033
Total—1981	Units	6,375	387	6,762	6,078	513	6,591			
	Mva	114,837	11,057	125,894	91,093	7,131	98,224			
1982										
1st Quarter	Units	1,548	151	1,699	1,377	114	1,491	3,809	354	4,163
	Mva	28,849	2,184	31,033	16,183	1,726	17,909	160,733	7,573	168,306
2nd Quarter	Units	1,608	166	1,774	1,399	106	1,505	3,410	254	3,664
	Mva	25,958	1,507	27,465	22,920	314	23,234	152,942	6,203	159,145
3rd Quarter	Units	1,401	134	1,535	1,203	74	1,277	3,315	242	3,557
	Mva	27,512	1,146	28,658	14,928	604	15,532	141,630	5,432	147,062
4th Quarter	Units	1,424	102	1,526	1,179	88	1,267	3,330	246	3,576
	Mva	31,425	1,273	32,698	23,972	1,080	25,052	131,533	5,501	137,034
Total—1982	Units	5,981	553	6,534	5,158	382	5,540			
	Mva	113,744	6,110	119,854	78,003	3,724	81,727			

*Data in these tables concerning the number and aggregate capacity of units ordered during each quarter of a calendar year have been adjusted to account for changes in ratings, for cancellations and any other changes that occurred during that calendar year, but no adjustments are made for changes occurring after the close of the year.

Table H COMBUSTION TURBINE-GENERATORS—4,000 Kw and Larger

Period		Shipped During Period To				Ordered During Period By*				Scheduled for Shipment at End of Period To			
		U.S. Electric Power Systems	U.S. Industrials	Outside U.S.	Total Shipments	U.S. Electric Power Systems	U.S. Industrials	Outside U.S.	Total New Orders	U.S. Electric Power Systems	U.S. Industrials	Outside U.S.	Total
1980													
1st Quarter	Units	—	—	2	2	1	—	1	2	17	—	7	24
	Kw	—	—	65,790	65,790	145,600	—	30,000	175,600	2,816,260	—	494,740	3,311,000
2nd Quarter	Units	1	—	—	1	2	—	3	5	18	—	8	26
	Kw	145,600	—	—	145,600	154,940	—	240,700	395,640	2,802,160	—	544,540	3,346,700
3rd Quarter	Units	3	—	11	14	2	—	7	9	19	—	6	25
	Kw	186,000	—	870,120	1,056,120	151,700	—	484,730	636,430	2,864,300	—	350,050	3,214,350
4th Quarter	Units	5	—	7	12	2	—	9	11	15	—	9	24
	Kw	310,180	—	490,340	800,520	98,950	—	830,160	929,110	2,580,070	—	276,720	3,322,440
Total—1980	Units	9	—	20	29	7	—	20	27				
	Kw	641,780	—	1,426,250	2,068,030	551,190	—	1,585,590	2,136,780				
1981													
1st Quarter	Units	3	—	3	6	1	3	—	4	13	3	6	22
	Kw	183,180	—	228,670	411,850	26,050	289,320	—	315,370	2,422,940	289,320	513,700	3,225,960
2nd Quarter	Units	1	—	1	2	—	—	1	1	11	3	6	20
	Kw	145,600	—	52,500	198,100	—	—	35,790	35,790	1,969,340	289,320	496,990	2,755,650
3rd Quarter	Units	1	—	3	4	1	2	5	8	10	5	8	23
	Kw	96,440	—	220,270	316,710	81,150	130,940	482,200	694,290	1,881,150	420,260	758,920	3,060,330
4th Quarter	Units	—	—	—	—	3	3	—	6	13	8	10	31
	Kw	—	—	—	—	417,380	289,320	—	706,700	2,298,530	709,580	831,840	3,839,950
Total—1981	Units	5	—	7	12	5	8	6	19				
	Kw	425,220	—	501,440	926,660	524,580	709,580	517,990	1,752,150				
1982													
1st Quarter	Units	—	—	—	—	1	—	3	4	10	9	13	31
	Kw	—	—	—	—	35,790	—	109,380	145,170	1,788,170	709,580	941,220	3,438,970
2nd Quarter	Units	1	3	3	7	—	—	—	—	7	6	10	23
	Kw	35,790	227,380	169,360	432,530	—	—	—	—	1,566,380	522,400	771,860	2,860,640
3rd Quarter	Units	—	—	4	4	—	—	—	—	7	6	6	19
	Kw	—	—	377,360	377,360	—	—	—	—	1,566,380	522,400	394,500	2,483,280
4th Quarter	Units	—	4	6	10	—	1	—	1	9	2	—	11
	Kw	—	385,760	394,500	780,260	—	36,700	—	36,700	1,674,380	133,140	—	1,807,520
Total—1982	Units	1	7	13	21	1	1	3	5				
	Kw	35,790	613,140	941,220	1,590,150	35,790	36,700	109,380	181,870				

*Data in these tables concerning the number and aggregate capacity of units ordered during each quarter of a calendar year have been adjusted to account for changes in ratings, for cancellations and any other changes that occurred during that calendar year, but no adjustments are made for changes occurring after the close of the year.

Table I NUCLEAR REACTORS—50,000 Kwe and Larger

Period		Completed During Period For			Ordered During Period By*			Scheduled for Completion at End of Period To		
		U.S. Electric Power Systems	Outside U.S.	Total Shipments	U.S. Electric Power Systems	*Outside U.S.	Total New Orders	U.S. Electric Power Systems	Outside U.S.	Total
1980										
1st Quarter	Units	1	—	1	—	—	—	108	37	145
	Kwe	950,000	—	950,000	—	—	—	119,677,000	32,835,000	152,512,000
2nd Quarter	Units	—	—	—	—	—	—	108	37	145
	Kwe	—	—	—	—	—	—	119,667,000	32,835,000	152,512,000
3rd Quarter	Units	1	1	2	—	—	—	103	36	139
	Kwe	907,000	912,000	1,819,000	—	—	—	114,670,000	31,941,000	146,611,000
4th Quarter	Units	1	1	2	—	—	—	101	35	136
	Kwe	1,148,000	840,000	1,988,000	—	—	—	112,615,000	31,101,000	143,716,000
Total—1980	Units	3	2	5	—	—	—			
	Kwe	3,005,000	1,752,000	4,757,000	—	—	—			
1981										
1st Quarter	Units	—	—	—	—	—	—	100	35	135
	Kwe	—	—	—	—	—	—	111,425,000	31,146,000	142,571,000
2nd Quarter	Units	—	—	—	—	—	—	100	35	135
	Kwe	—	—	—	—	—	—	111,425,000	31,101,000	142,526,000
3rd Quarter	Units	1	—	1	—	—	—	94	33	127
	Kwe	829,000	—	829,000	—	—	—	105,381,000	29,197,000	134,578,000
4th Quarter	Units	2	1	3	—	—	—	92	32	124
	Kwe	2,295,000	951,000	3,246,000	—	—	—	103,089,000	28,246,000	131,335,000
Total—1981	Units	3	1	4	—	—	—			
	Kwe	3,124,000	951,000	4,075,000	—	—	—			
1982										
1st Quarter	Units	—	—	—	—	—	—	87	32	119
	Kwe	—	—	—	—	—	—	97,922,000	28,246,000	126,168,000
2nd Quarter	Units	1	—	1	—	—	—	86	32	118
	Kwe	1,148,000	—	1,148,000	—	—	—	96,774,000	28,246,000	125,020,000
3rd Quarter	Units	—	—	—	—	—	—	82	32	114
	Kwe	—	—	—	—	—	—	91,842,000	28,246,000	120,088,000
4th Quarter	Units	—	1	1	—	—	—	81	31	112
	Kwe	—	951,000	951,000	—	—	—	90,642,000	27,295,000	117,937,000
Total—1982	Units	1	1	2	—	—	—			
	Kwe	1,148,000	951,000	2,099,000	—	—	—			

*Data in these tables concerning the number and aggregate capacity of units ordered during each quarter of a calendar year have been adjusted to account for changes in ratings, for cancellations and any other changes that occurred during that calendar year, but no adjustments are made for changes occurring after the close of the year.

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Washington, D.C. 20036
04-63-20